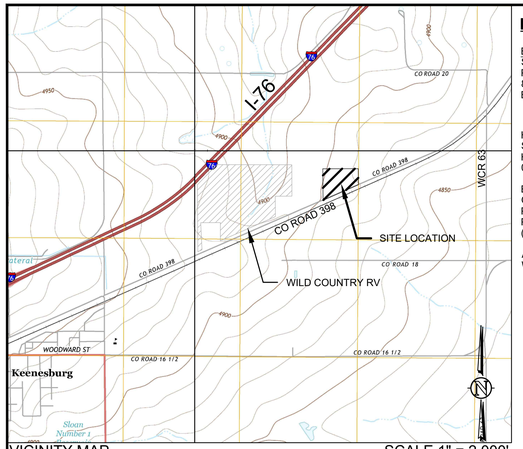


VICINITY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

BASIS of BEARING & BENCHMARK

BASIS OF BEARING: THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°53'18" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO;

HORIZONTAL COORDINATES ARE BASED UPON THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE (0501) AND HAVE BEEN MODIFIED TO GROUND BY A FACTOR OF 1.000271714 / 0.99972836.

ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (DPOS) RESULTING IN CONTROL POINT NO. 1 HAVING AN ELEVATION OF 4893.43 FEET NAVD 88 (GEOID 12B).

ALL CONTOURS SHOWN HEREON ARE AT ONE FOOT INTERVALS WITH INDEX CONTOURS SHOWN AT FIVE FOOT INTERVALS

LEGAL DESCRIPTION

ANNEXATION TABLE TOTAL PERIMETER:
3394.59 FEET REQUIRED 1/6 CONTIGUOUS
PERIMETER: 565.77 FEET CONTIGUOUS
BOUNDARY: 1079.05 FEET

ANNEXATION DESCRIPTION: LOT B OF RECORDED EXEMPTION NO. 1303-19-3 RE-4364, BEING A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH PRINCIPAL MERIDIAN, AS RECORDED AS RECEPTION NO. 3373994, MARCH 28, 2006 IN THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER

OWNER'S CERTIFICATE: KNOW ALL MEN BY THESE PRESENTS, THAT RICHARD I. ROBERTSON, HEIDI D. ROBERTSON, AARON L. KAISER, AND LORI J. KAISER, BEING THE SOLE OWNERS AND PROPRIETORS OF THAT PARCEL OF LAND DESCRIBED HEREON, EXCLUDING PUBLIC RIGHTS-OF-WAY, REQUEST THAT THE LAND DESCRIBED HEREON BE ANNEXED UNDER THE NAME OF ROBERTSON-KAISER ANNEXATIONTO THE TOWN OF KEENESBURG:

0	1	1	COVER SHEET
0	1	2	GENERAL NOTES & SPECIFICATIONS
0	1	3AE	EXISTING CONDITIONS W/ AERIAL
0	1	3	EXISTING CONDITIONS & DEMO PLAN
0	1	4	SITE PLAN
0	1	5	UTILITY PLAN
0	1	6	WATER PLAN & PROFILE
0	1	7	HYDRANT PLAN & PROFILE
0	1	8	SEPTIC PLAN
0	1	9	ROUGH GRADING PLAN
0	1	10	FINAL GRADING PLAN
0	1	10X	GRADING CROSS SECTIONS
	1	10OF	OVERFLOW GRADING DETAILS
	1	10-398	WCR 398 DITCH GRADING
0	1	11	RK DRIVE PLAN AND PROFILE
0	1	12	KEENESBURG WATER DETAILS
0	1	13	KEENESBURG WATER DETAILS
0	1	14	KEENESBURG WATER DETAILS
0	1	15	HISTORIC DRAINAGE
0	1	16	DEVELOPED DRAINAGE
0	1	17	POND "S" PLAN
	1	17D	POND SPILLWAY DETAILS
0	1	18	INITIAL EROSION CONTROL PLAN
0	1	19	INTERIM EROSION CONTROL PLAN
0	1	20	FINAL EROSION CONTROL PLAN
0	1	21	SWMP/EROSION CONTROL DETAILS
0	1	22	SWMP/EROSION CONTROL DETAILS
0	1	23	SWMP/EROSION CONTROL DETAILS
0	1	24	SCREENING/LANDSCAPE PLAN
0	1	25	SCREENING/LANDSCAPE DETAILS
	1	26	PHOTOMETRIC PLAN
	1	27	PHOTOMETRIC DETAILS

RK PRELIMINARY PLAT

KEENESBURG, CO 80643

PREPARED FOR:

RICK ROBERTSON
8537 WCR 51
KEENESBURG, CO 80643
(303)961-0031

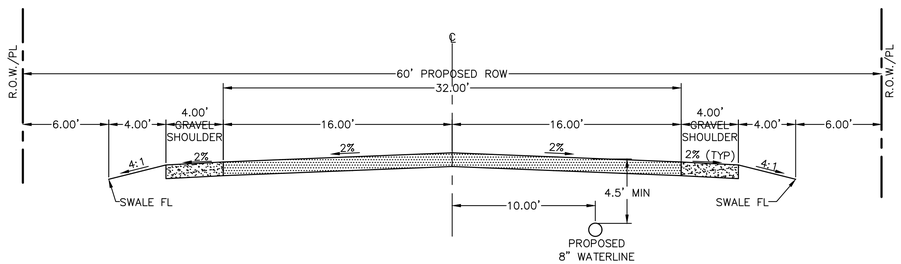
AARON KAISER
39673 E 160th AVENUE
KEENESBURG, CO 80643
(303)994-7947

APPROVED BY:

RICK ROBERTSON	**DATE**	**AARON KAISER**	**DATE**

WESTERN ENGINEERING CONSULTANTS, inc. LLC **DATE**
CHADWIN F. COX, P.E.

0	INITIAL RELEASE:	MARCH 19, 2019
1	RESUBMITTAL PER 05/02/19 TOWN COMMENTS	MAY 19, 2020



RK DRIVE DRIVE TYPICAL SECTION
SCALE 1" = 5' VIEW IS NORTH

OWNER/DEVELOPER	TOWN/CITY	FIRE DISTRICT	UTILITY
ROBERTSON KAISER LAND HOLDINGS LLC CONTACT: RICK ROBERTSON 50531 E. 160th AVENUE BENNETT, CO 80102 (303)961-0031	TOWN OF KEENESBURG CONTACT: TODD HODGES 140 S. MAIN STREET KEENESBURG, CO 80643 PHONE: (303)732-4281	SOUTHEAST WELD FIRE PROTECTION DISTRICT CONTACT: THOMAS BEACH 65 E. GANDY AVENUE KEENESBURG, CO 80643 PHONE: (303) 732-4203	UNITED POWER BRIGHTON HEADQUARTERS OFFICE 500 COOPERATIVE WAY BRIGHTON, CO 80603 (303)637-1300

UNCC CALL BEFORE YOU DIG
1-800-922-1987
Utility Notification Center of Colorado
Administrative Office
16361 Table Mountain Parkway
Golden, Colorado 80403
Office: 303-232-1991 Fax: 303-234-1712
Toll-Free: 1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

PREPARED BY:

Western Engineering Consultants, inc. LLC

WESTERN ENGINEERING CONSULTANTS, inc. LLC
127 SOUTH DENVER AVENUE, FT. LUPTON, CO 80621
720-685-9951 PH, 720-294-1330 FAX, email@westerneci.com

PROJECT NO: 00-0187.002.00
INITIAL PLAN RELEASE: MARCH 19, 2019
TOTAL SHEETS: 32
SHEET: **1 of 27**

W:\ENGINEERING\PROJECTS\2019\0187_002_00-RK ANNEXATION\Dwg\Cds\0187_002_00-RK_ANNEX_CDs.dwg, 01-COVER, 5/20/2020 5:46:14 PM, DWG To PDF.pc3

NOT FOR TOWN REVIEW - FOR CONTRACT DOCUMENTS ONLY

ALL REFERENCES HERE-IN THIS PLAN SET TO "CITY" or "TOWN" SHALL BE INTERPRETED AS MEANING KEENESBURG.

SUPPLEMENTAL CONSTRUCTION NOTES

(TOWN of KEENESBURG NOTES & REQUIREMENTS SHALL GOVERN)

GENERAL CONSTRUCTION NOTES:

1. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY, OR EASEMENT, SHALL CONFORM TO TOWN OF KEENESBURG CONSTRUCTION SPECIFICATIONS AND DESIGN STANDARDS. IN THE CASE SUCH STANDARDS ARE NOT PROVIDED, CDOT STANDARDS SHALL APPLY.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO COMMENCEMENT OF ANY WORK ON THE PROJECT.
3. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE OWNER AND THE TOWN OF ANY PROBLEMS IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR DURING CONSTRUCTION ACTIVITIES TO RESOLVE CONSTRUCTION PROBLEMS DUE TO CHANGED CONDITIONS OR DESIGN ERRORS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROJECT. IF, IN THE OPINION OF THE OWNER, THE MODIFICATIONS PROPOSED BY THE CONTRACTOR TO THE APPROVED PLANS INVOLVE SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESUBMITTING THE REVISED PLAN TO THE OWNER FOR APPROVAL PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE PROJECT. ANY IMPROVEMENTS NOT CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS, OR THE APPROVED REVISED PLANS, SHALL BE REMOVED AND RECONSTRUCTED ACCORDING TO THE APPROVED PLANS.
5. THE GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED FINAL DRAINAGE PLAN AND SITE PLAN.
6. A WATER TRUCK, IF CALLED BY THE INSPECTOR (OR PUBLIC WORKS DEPARTMENT (PWD)), WILL BE PROVIDED, BY THE CONTRACTOR, TO MAINTAIN DUST CONTROL..
7. ANY SETTLEMENT OR SOIL ACCUMULATION, BEYOND THE PROPERTY LIMITS, DUE TO GRADING OR EROSION, SHALL BE REPAIRED BY THE CONTRACTOR IMMEDIATELY.
8. NO GRADING SHALL TAKE PLACE IN DELINEATED FLOOD HAZARD AREAS UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.
9. ANY CONSTRUCTION DEBRIS OR MUD TRACKING ONTO THE PUBLIC RIGHT-OF-WAY, RESULTING FROM THE PROJECT, SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL IMMEDIATELY FIX ANY EXCAVATION OR EXCESSIVE PAVEMENT FAILURE CAUSED BY PROJECT, AND SHALL PROPERLY BARRICADE THE SITE UNTIL CONSTRUCTION IS COMPLETE. FAILURE BY THE CONTRACTOR TO CORRECT ANY OF THE ABOVE WITHIN 48 HOURS OF WRITTEN NOTICE, BY THE TOWN, SHALL CAUSE THE TOWN TO ISSUE A STOP WORK ORDER (RED TAG) AND/OR DO THE WORK AND MAKE A CLAIM AGAINST THE PROJECT'S LETTER OF CREDIT FOR ANY COSTS INCURRED BY THE TOWN.
10. THE CONTRACTOR SHALL BE SOLELY, AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS AT, AND ADJACENT TO, THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, DURING THE PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY, AND SHALL NOT BE LIMITED TO, NORMAL WORKING HOURS. THE DUTY OF THE TOWN TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
12. ~~ALL UTILITY POLES SHALL BE RELOCATED PRIOR TO PLACEMENT OF ANY CONCRETE BY THE _____ ELECTRIC DEPARTMENT. ALL FACILITIES THAT NEED RELOCATION BY THE ELECTRIC DEPARTMENT WILL BE BILLED TO THE DEVELOPER.~~
13. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS PRIOR TO ADJUSTING ALL CLEANOUTS, MANHOLES, VALVE BOXES, SURVEY MONUMENTS, AND ANY OTHER FIXTURES TO FINISHED GRADE PRIOR TO FINAL PAVING.
14. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGPERSONS, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY, IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. THE CONTRACTOR SHALL PROVIDE INGRESS AND EGRESS TO PRIVATE PROPERTY ADJACENT TO THE PROJECT THROUGHOUT THE PERIOD OF CONSTRUCTION. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL OBTAIN A WRITTEN AGREEMENT FROM THE PROPERTY OWNERS IMPACTED BY THIS ACCESS. ~~UPON REQUEST, THE CONTRACTOR SHALL PROVIDE A COPY OF THESE WRITTEN AGREEMENTS TO THE OWNER.~~
16. PRIOR TO FINAL PLACEMENT OF SURFACE PAVEMENT, ALL UNDERGROUND UTILITY MAINS SHALL BE INSTALLED AND SERVICE CONNECTIONS STUBBED OUT BEYOND CURB LINE, WHEN ALLOWED BY THE UTILITY. SERVICE FROM PUBLIC UTILITIES AND FROM SANITARY SEWERS SHALL BE MADE AVAILABLE FOR EACH LOT IN SUCH A MANNER THAT WILL NOT BE NECESSARY TO DISTURB THE STREET PAVEMENT, CURB, GUTTER, AND SIDEWALK WHEN CONNECTIONS ARE MADE.
17. REPRODUCIBLE COPIES OF "AS BUILT" PLANS SHALL BE SUBMITTED TO THE TOWN PRIOR TO CONSTRUCTION ACCEPTANCE OF THE PUBLIC IMPROVEMENTS (IF ANY PUBLIC IMPROVEMENTS ARE NECESSARY).
18. THE CONTRACTOR SHALL NOTIFY THE TOWN INSPECTOR (OR PWD) AT LEAST 24 HOURS PRIOR TO DESIRED INSPECTION.
19. THE CONTRACTOR SHALL BE RESPONSIBLE TO APPROPRIATELY MARK (BY BAGGING) ALL FIRE HYDRANTS THAT ARE TAKEN OUT OF SERVICE DURING THIS PROJECT. THE CONTRACTOR SHALL NOTIFY THE TOWN FIRE DEPARTMENT AT LEAST 24 HOURS PRIOR TO REMOVING ANY FIRE HYDRANT FROM SERVICE.
20. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE TOWN OF KEENESBURG AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
21. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB, ON-SITE AT ALL TIMES.
22. THERE SHALL BE NO SITE CONSTRUCTION ACTIVITIES ON SATURDAYS, UNLESS SPECIFICALLY APPROVED BY THE PUBLIC WORKS INSPECTOR, AND NO SITE CONSTRUCTION ACTIVITIES ON SUNDAYS OR HOLIDAYS, UNLESS THERE IS PRIOR WRITTEN APPROVAL BY THE PUBLIC WORKS DIRECTOR.

WESTERN ENGINEERING CONSULTANTS GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN DESIGN & CONSTRUCTION SPECIFICATIONS. IN THE CASE SUCH STANDARDS ARE NOT PROVIDED, A PROPER SPECIFICATION SHALL BE FOLLOWED AS AGREED BETWEEN THE OWNER, ENGINEER, AND CONTRACTOR.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE ELEVATION AND O.D. OF ALL EXISTING LINES AT THE POINT OF CONNECTION TO THE NEW SYSTEM PRIOR TO ORDERING MATERIALS THAT DEPEND ON THIS INFORMATION.
3. WESTERN ENGINEERING CONSULTANTS (WEC) IS NOT A GUARANTOR OF THE CONSTRUCTING CONTRACTORS OBLIGATION AND PERFORMANCE OF WORK.
4. WEC IS NOT RESPONSIBLE FOR SAFETY, IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS THERETO.
5. WEC EXERCISES NO CONTROL OF THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS, OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERVISION OF THE SAME.

ARCHITECTURAL INFORMATION:

1. ~~THESE PLANS USED THE BUILDING PLAN PREPARED BY _____, DATED _____.~~
2. ~~ANY SUBSEQUENT REVISIONS MADE BY _____ ARE NOT REFLECTED IN THIS PLAN SET.~~ REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE ENGINEERING REVISIONS ONLY.

UTILITY LOCATION NOTES:

1. COLORADO STATE S.B. 93-155 REQUIRES ANYONE WHO ENGAGES IN ANY TYPE OF EXCAVATION TO PROVIDE ADVANCE NOTICE OF AT LEAST TWO (2) BUSINESS DAYS NOT INCLUDING THE DAY OF ACTUAL NOTICE.

UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) 1-800-922-1987

2. NEW UTILITIES MAY HAVE BEEN INSTALLED SINCE THE LOCATES FOR THIS PROJECT WERE COMPLETED (IE NOT SHOWN ON PLANS). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ATTAIN NEW LOCATES AS STATED BY LAW.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ADDITIONAL LOCATES IF THE STATE OR ANOTHER UTILITY ENTITY HAS UTILITIES IN THE AREA WHICH WERE NOT IDENTIFIED BY UNCC.

UTILITY POTHOLE & SURVEY NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO STARTING CONSTRUCTION. LOCATIONS WHERE EXISTING UTILITIES AND PROPOSED CONSTRUCTION CROSS OR POTENTIALLY CONFLICT SHALL BE POTHOLED BY THE CONTRACTOR, ELEVATIONS SURVEYED, AND RESULTS AND CONFLICTS PROVIDED TO WEC. WEC REQUIRES A MINIMUM OF 5 WORKING DAYS FOR RE-DESIGN OF ANY CONFLICTS DISCOVERED BY THE POTHOLE. SEE ALSO CONTRACTOR'S AS-BUILT DRAWING NOTES.
2. THE CONTRACTOR SHALL PROVIDE DRAWINGS OF EXISTING ON-SITE UNDERGROUND UTILITIES AS EXPLAINED WITHIN THE CONTRACTOR'S AS-BUILT DRAWING NOTES. THE CONTRACTOR IS REQUIRED TO PLAN AHEAD AND NOTIFY THE OWNER OF ANY CONFLICTS IN A TIMELY MANNER.

CONTRACTOR'S AS-BUILT DRAWINGS NOTES:

1. THE CONTRACTOR SHALL PROVIDE, AT THE COMPLETION OF THE PROJECT OR EACH PHASE OF THE PROJECT, A COMPLETE SET OF "AS-BUILT" DRAWINGS TO THE OWNER. THE AS-BUILT DRAWINGS WILL CONSIST OF A MARKED-UP SET OF "ISSUED FOR CONSTRUCTION" DRAWINGS VERIFYING THE FOLLOWING:
   - A) ALL LENGTHS, SIZES, AND MATERIALS OF INSTALLED PIPE, MANHOLES, AND ANY OTHER IMPROVEMENT.
   - B) HORIZONTAL LOCATIONS EITHER BY STATION AND OFFSET, OR BY NORTHING AND EASTING COORDINATES OF ALL MANHOLES, BENDS, CLEANOUTS, VALVES, TAPS, WYES, STUBS, PLUGS, TEES, ETC.
   - C) INVERT ELEVATION OF EACH CONSTRUCTED PIPE AT: STORM SEWER AND SANITARY SEWER MANHOLES, INLETS, OUTLETS, STUB ENDS, ETC. TOP OF PIPE ELEVATIONS OF EACH FOREIGN PIPE OR UTILITY CROSSING.
   - D) CONSTRUCTED SLOPE OF STORM AND SANITARY PIPES BETWEEN MANHOLES AND STRUCTURES.
   - E) TOP OF PIPE ELEVATION AT REGULAR INTERVALS AND/OR FITTINGS FOR WATER LINES, FIRE PROTECTION LINES, GAS LINES, AND ELECTRIC CONDUITS.
   - F) ELEVATIONS AT FLOWLINE OF CURB AND GUTTER AT DESIGN LOCATIONS AND GRADE BREAKS. ELEVATION OF INLET AND TRENCH DRAIN GRATES. TOP OF CURB AT CURB INLETS.
   - G) ANY OTHER VARIATIONS FROM THE CONSTRUCTION DOCUMENTS MUST BE CLEARLY NOTED AND DETAILED ON THE PLANS.
2. THE CONTRACTOR SHALL VERIFY AND SUBMIT, FOR APPROVAL BY THE OWNER, THE GROUND SURFACE ELEVATIONS AT THE FINAL COMPLETION OF THE PROJECT PRIOR TO THE FINAL ACCEPTANCE.
3. THE FINAL AS-BUILT DRAWING CERTIFICATE SHALL BE SIGNED ON EACH SHEET BY THE CONTRACTOR RESPONSIBLE FOR THE WORK.
4. CONTRACTOR AS-BUILT DRAWINGS WILL BE DUE PRIOR TO SUBMITTING THE FINAL PAY REQUEST. NON-CONFORMING AS-BUILT DRAWINGS WILL BE RETURNED TO THE CONTRACTOR FOR REVISIONS AND RESUBMITTAL. FINAL PAYMENT WILL NOT BE APPROVED UNTIL THE OWNER HAS REVIEWED AND APPROVED THE AS-BUILT DRAWINGS.
5. ALL AS-BUILT SURVEYING SHALL MEET COLORADO STANDARD OF CARE. (I.E. HORIZONTAL WITHIN 0.10-FEET AND VERTICAL WITHIN 0.05-FEET). IT IS RECOMMENDED ALL GRAVITY SYSTEMS BE DIFFERENTIAL SURVEYED TO MAINTAIN ACCEPTABLE TOLERANCES.

GEOTECHNICAL NOTES:

1. FOR ALL GEOTECHNICAL RELATED ISSUES (PIPE BEDDING, BACKFILL, IMPORTING FILLS, ASPHALT, ETC). REFERENCE THE LOT 1, 2, 3, 4, AND 7 SUBSURFACE INVESTIGATION AND FOUNDATION RECOMMENDATIONS PREPARED BY HIGH PLAINS ENGINEERING AND DESIGN, LLC DATED JANUARY 22, 2020 AND FEBRUARY 13, 2020. ALSO SEE TOWN DESIGN & CONSTRUCTION STANDARDS & SPECIFICATIONS.

GEOTECHNICAL TESTING:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL TESTING IN ORDER TO MEET ADJACENT PROPERTY OWNER REQUIREMENTS AND TOWN DESIGN STANDARDS.
2. THE OWNER SHALL PAY FOR TESTING TO MEET THE MINIMUM REQUIRED BY TOWN STANDARDS.
3. ALL COSTS FOR FAILING TESTS WILL BE DEDUCTED FROM THE CONTRACTOR'S PAYMENT REQUEST(S).

CONSTRUCTION WORK LIMITS:

1. NO CONSTRUCTION ACTIVITIES SHALL TAKE PLACE OUTSIDE OF THE SHOWN WORK LIMITS, EXCEPT FOR ACCESS WITHIN EXISTING ACCESS ROUTES.
2. ALL EXISTING FENCE WITHIN THE CONSTRUCTION WORK LIMITS SHALL BE REMOVED, SALVAGED, AND REPLACED AS DIRECTED BY THE OWNER.
3. ANY FENCE DAMAGED DURING REMOVAL SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

BASIS of BEARING & BENCHMARK:

BASIS OF BEARING: THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 19, TOWNSHIP 2 NORTH, RANGE 63 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR NORTH 89°53'18" EAST, AS MONUMENTED HEREON AND WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO;

BENCHMARK: ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (DPOS) RESULTING IN CONTROL POINT NO. 1 HAVING AN ELEVATION OF 4893.43 FEET NAVD 88 (GEOID 12B).

SURVEY CONSTRUCTION NOTES:

1. PROJECT HORIZONTAL & VERTICAL CONTROL AND CONTROL NOTES ARE SHOWN ON THE HORIZONTAL BASELINE CONTROL SHEET OF THIS PLAN SET.
2. ALL PROPERTY PINS OR SURVEY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A LICENSED SURVEYOR AT THE CONTRACTOR'S EXPENSE. THIS SHALL INCLUDE A SURVEY PLAT IF REQUIRED BY LAW.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIND AND IDENTIFY ALL EXISTING SURVEY MONUMENTS WHICH MAY BE DISTURBED DURING CONSTRUCTION.
4. EXISTING HORIZONTAL AND VERTICAL CONTROL SHALL BE VERIFIED BY A PROFESSIONAL LAND SURVEYOR. THE CONTRACTOR'S SURVEYOR SHALL PROVIDE WRITTEN CONFIRMATION VERIFYING THE CONTROL IS SATISFACTORY PRIOR TO BEGINNING OF CONSTRUCTION.
5. ALL CONSTRUCTION SURVEYING SHALL MEET COLORADO STANDARD OF CARE.
6. THE CONTRACTOR SHALL FIELD SURVEY THE EXISTING GROUND SURFACE ALONG THE PROPOSED ALIGNMENT, COMPARE THE SURFACE TO THE TOPOGRAPHY AS SHOWN ON THESE PLANS AND SUBMIT IN WRITING ANY CONCLUSIONS / DISCREPANCIES BETWEEN THE SURVEYS.
7. ALL FIELD STAKING SHALL BE PERFORMED AND LABELED MATCHING THE STATIONING AND OFFSET BASELINE AS SHOWN IN THIS PLAN SET. ARBITRARY BASELINE OR STATIONING (NOT MATCHING THESE DESIGN PLANS) WILL NOT BE ALLOWED.
8. CUT-SHEETS ARE REQUIRED TO BE COPIED TO THE SPECIFIC IMPROVEMENT CONTRACTOR, OWNER AND WEC WITHIN 2 DAYS OF CONSTRUCTION STAKING.
9. ANY MONUMENTS INSTALLED FOR THIS PROJECT (NEW & REVISED) SHALL BE PER CDOT DETAIL (M-629-1).

EXISTING TOPOGRAPHY and CONTOURS:

1. ALL PROFILES (THIS PLAN SET) REPRESENT A DIGITAL TERRAIN MODEL (DTM) CREATED BY WEC BASED ON FIELD SURVEY PROVIDED BY OTHERS.
2. CONTOUR LINES OF EXISTING/ORIGINAL GRADE HAVE A 2-FOOT INTERVAL ACCURACY AND ARE SHOWN FOR ILLUSTRATION ONLY.

GRADING AND COMPACTION NOTES:

1. REFERENCE THE "GEOTECHNICAL SUBSURFACE EXPLORATION REPORT" PREPARED BY SOILOGIC, INC DATED JANUARY 14, 2014.
2. ALL EXCESS SOIL MATERIALS ARE TO BE STOCKPILED AS DIRECTED BY THE OWNER OR REMOVED AT THE CONTRACTOR'S EXPENSE. ALL CONCRETE, ASPHALT, AND OTHER REMOVED IMPROVEMENTS SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
3. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION AS A MINIMUM, UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL GRADEWORK TO ENSURE POSITIVE DRAINAGE AT ALL TIMES (MATCH ORIGINAL CONDITIONS).
5. ALL BACKFILL SHALL MEET THE TYPICAL TRENCH DETAIL SPECIFICATIONS SHOWN IN THIS PLAN SET, AND PER TOWN CRITERIA.
6. ALL OTHER SOIL PLACEMENT OVER 12-INCHES IN THICKNESS SHALL ALSO MEET THE TYPICAL TRENCH DETAIL COMPACTION SPECIFICATIONS SHOWN IN THIS PLAN SET.
7. STRIP THE TOP 6-INCHES OF ALL AREAS TO BE DISTURBED DURING CONSTRUCTION, AND STOCKPILE SEPARATE FROM TRENCH SPOILS IN LOCATION(S) AS APPROVED BY PROPERTY OWNER. REPLACE STRIPPINGS ABOVE COMPLETED PIPELINES MATCHING PRE CONSTRUCTION GRADES WHERE NO PROPOSED GRADING IS SHOWN.
8. THE CONTRACTOR SHALL MEET THE PROJECT SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT AND COORDINATE SCHEDULING THE GEOTECHNICAL TESTING FIRM IN ORDER TO MEET THE PROJECT SPECIFICATIONS AND STANDARDS.
9. FOR GRADING NOT SHOWN HERE-IN THESE PLANS, REFER TO LANDSCAPE GRADING BY OTHERS. LANDSCAPE FINAL GRADING TO BE PROVIDED BY OTHERS.
10. ROUGH GRADING VERTICAL TOLERANCES ARE ± 0.10 FT.
11. COMPACTION OF ALL HYDRANT RUN BACKFILL SHALL MEET 100% OF MAXIMUM DENSITY AND WITHIN 3% +/- OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY STANDARD PROCTOR ASTM-D-698.
12. CONTRACTOR TO PROVIDE TRAFFIC CONTROL MEASURES AS REQUIRED BY TOWN STANDARDS FOR PUBLIC RIGHT OF WAY.
13. IF NECESSARY TO ACCESS OVER EXISTING IMPROVEMENTS (IE, EXISTING ROADS, SHALLOWS, UTILITIES ETC,,) THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL CONSULTANT REGARDING PROTECTION AGAINST CONSTRUCTION TRAFFIC LOADS.

EROSION CONTROL & STORM WATER MANAGEMENT PLAN:

1. ALL EROSION CONTROL MEASURES MUST BE INSTALLED PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD) REQUIREMENTS (UNLESS OTHERWISE SHOWN HEREIN), AND ALSO STATE SWMP PERMIT REQUIREMENTS.
2. ALL DISTURBED AREAS (I.E. CONSTRUCTION WORK LIMITS) SHALL BE ENCLOSED BY SILT FENCE IF POTENTIAL FOR RUNOFF EXISTS.
3. INSTALL VEHICLE TRACKING CONTROL AT ALL ACCESS ROAD LOCATIONS ADJACENT TO ALL ENTRANCES / EXITS TO & FROM THE SITE.
4. SEE EROSION PROTECTION DETAILS AS SHOWN ON DRAWINGS.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN (IE, SEASONAL SEEDING, MATERIALS, ETC.) ANY AND ALL EROSION PROTECTION NECESSARY UNTIL FINAL ACCEPTANCE OR ONCE SEEDING IS ESTABLISHED, WHICHEVER COMES FIRST.
6. THE CONTRACTOR SHALL PROVIDE SWEEPING AS NECESSARY TO KEEP PRIVATE AND PUBLIC ROADWAYS CLEAN OF DEBRIS.

SEEDING:

1. ALL SEEDING SHALL BE PER TOWN PARKS & RECREATION DESIGN STANDARDS AND AS ACCEPTABLE TO THE PROPERTY OWNER.

ADJACENT DITCH or LATERAL WORK:

1. NO WORK SHALL COMMENCE WITHIN 15-FEET OF ANY DITCH OR LATERAL TOP OF BANK EXCEPT AT THOSE CROSSING LOCATIONS AS NOTED ON THE PLANS UNLESS OTHERWISE APPROVED BY THE OWNER AND APPROPRIATE DITCH COMPANY.
2. ALL WORK WITHIN 15-FEET OF ANY DITCH OR LATERAL TOP OF BANK SHALL MEET ALL REQUIREMENTS AND SPECIFICATIONS PER THE DITCH CROSSING PERMIT.
3. CONTACT OWNER/WEC FOR ANY DITCH RELATED ISSUES.

ELECTRIC and COMMUNICATION CONDUIT CONSTRUCTION NOTES:

1. SEE ALSO ELECTRICAL PLANS FOR ELECTRIC AND COMMUNICATION DESIGN AND SPECIFICATIONS - BY OTHERS.

RELOCATION OF EXISTING LIGHT POLES AND EQUIPMENT:

1. SEE ALSO ELECTRICAL PLANS FOR REMOVAL, SALVAGE, AND RE-INSTALLATION OF EXISTING LIGHT POLES AND EXISTING SECURITY IMPROVEMENTS - BY OTHERS.

RAW WATERLINE CONSTRUCTION NOTES:

1. ~~RAW WATERLINE PIPE SHALL BE RIGID POLYVINYL CHLORIDE (PVC) ASTM D3034 (< 15") OR ASTM 679 (≥ 15") WITH WALL THICKNESS SDR 35, ADS N-12 SMOOTH INTERIOR, OR AS APPROVED BY THE ENGINEER.~~
2. ~~ALL LENGTHS SHOWN ON THE PLANS ARE FROM END TO END OR PI TO PI.~~
3. ~~THE CONTRACTOR SHALL INSTALL TEMPORARY PLUGS (IF NECESSARY) AT EXISTING HEAD GATES AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACCEPTANCE IS ISSUED, AT WHICH TIME THEY SHALL BE REMOVED BY THE CONTRACTOR.~~
4. ~~INSTALL MARKER POSTS IN NON-FARMABLE AREAS OR PERMANENT SURVEY MONUMENTS IN EXISTING CONCRETE STRUCTURES WITHIN 2.0-FEET OF PIPELINE BEND LOCATIONS (ALONG THE PIPE CENTERLINE NOT OFFSET).~~
5. ~~RAW WATERLINE PIPE SHALL BE AIR TESTED AT 4 PSIG OR AS APPROVED BY THE ENGINEER (SHALL DEPEND UPON PIPE MATERIAL USED).~~

STORM SEWER CONSTRUCTION NOTES:

1. ALL STORM SEWER PIPE TO BE A.S.T.M. C-76, CLASS III REINFORCED CONCRETE PIPE WITH RUBBER GASKETS MEETING AASHTO M-170 REQUIREMENTS. UNLESS OTHERWISE NOTED.
2. STORM SEWER MANHOLES SHALL BE 4 FEET DIAMETER FOR 30 INCH PIPE OR LESS, 5 FEET DIAMETER FOR 36 INCH PIPE. FOR SIZES ABOVE 36 INCH, CONCRETE JUNCTION BOXES, OR PRECAST MANHOLE TEES, WILL BE DETAILED BY THE ENGINEER.
3. ALL ROADWAY STORM SEWER INLETS ARE CDOT TYPE R CURB INLETS, UNLESS OTHERWISE NOTED. THE PROPOSED POND STORM SEWER OUTLET IS CDOT TYPE C.
4. ALL STORM SEWER MANHOLE AND INLET LIDS SHALL BE LABELED PER TOWN STANDARDS ~~INCLUDING THE FOLLOWING CONFINED SPACE INFORMATION "STORM SEWER, CAUTION CONFINED SPACE, ENTRY PERMIT REQUIRED," (TO BE COORDINATED WITH TOWN INSPECTOR).~~
5. MANHOLE AND INLET LID LOCATION TO BE COORDINATED WITH TOWN INSPECTOR.
6. A MINIMUM OF 2.0 FEET OF COVER OVER THE TOP OF THE STORM SEWER LINES SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
7. A MINIMUM VERTICAL SEPARATION OF 18" SHALL BE MAINTAINED AT ALL CROSSINGS UNLESS OTHERWISE NOTED.
8. ALL LENGTHS OF STORM SEWER LINES SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY FROM CENTER TO CENTER OF ALL STRUCTURES, MANHOLES, BENDS, TEES, AND INLETS UNLESS OTHERWISE NOTED.
9. STORM SEWER SHALL BE AIR TESTED AT 4 PSIG. CONCRETE MANHOLES SHALL BE TESTED PER MANHOLE LEAKAGE TEST.
10. ALL STORM SEWER PIPE SHALL BE LEFT SMOOTH, CLEAN, AND FREE OF OBSTRUCTIONS THROUGHOUT THE ENTIRE ALIGNMENT.
11. PIPE, BENDS, TEES, AND ALL ACCESSORIES ARE TO BE SUPPLIED BY THE SAME SUPPLIER.
12. EXCAVATION SHALL BE DEWATERED AS NECESSARY TO EXCAVATE AND PLACE PIPE WITHIN DRY TRENCH.
13. ALL INSTALLED STORM PIPING IS REQUIRED TO BE WATER JETTED CLEAN TWO WEEKS PRIOR TO THE FINAL ACCEPTANCE WALK THRU.
14. ALL STORM PIPING THIS PROJECT "PRIVATE" UNLESS OTHERWISE NOTED.

STORM DRAINAGE MAINTENANCE:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM EROSION AND SEDIMENT CONTROL MEASURES (INCLUDING PLANTINGS) AND TO MAINTAIN CONSTRUCTED DRAINAGE FACILITIES THROUGH THE CONSTRUCTION PROCESS IN A MANNER THAT PRESERVES THE INTENDED FUNCTION AND LIFE OF THE FACILITIES.

SANITARY SEWER CONSTRUCTION NOTES:

1. SEWER PIPE SHALL BE RIGID POLYVINYL CHLORIDE (PVC) ASTM D3034 (< 15") OR ASTM 679 (≥ 15") WITH WALL THICKNESS SDR 35 (SDR 26 FOR DEPTHS ≥ 20').
2. ALL LENGTHS OF SEWER LINE SHOWN ON THE MASTER UTILITY PLAN ARE FROM THE CENTER OF MANHOLE TO THE CENTER OF MANHOLE.
3. THE CONTRACTOR SHALL INSTALL TEMPORARY PLUGS IN THE MANHOLES AT THE POINTS OF CONNECTION TO THE EXISTING SEWER SYSTEMS. PLUGS SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACCEPTANCE IS ISSUED, AT WHICH TIME THEY SHALL BE REMOVED BY THE CONTRACTOR.
4. INSTALL MARKER POSTS IN LANDSCAPE AREAS OR PERMANENT SURVEY MONUMENTS IN EXISTING PAVED SURFACES WITHIN 2.0-FEET OF EVERY MANHOLE AND STUB LOCATION (ALONG THE PIPE CENTERLINE NOT OFFSET).

STREET CONSTRUCTION NOTES:

1. ALL STREET IMPROVEMENTS TO BE COMPLETED PER CDOT CONSTRUCTION STANDARDS & SPECIFICATIONS.
2. HANDICAP RAMPS ARE TO BE FORMED AT ALL INTERSECTIONS.

ASPHALT NOTES:

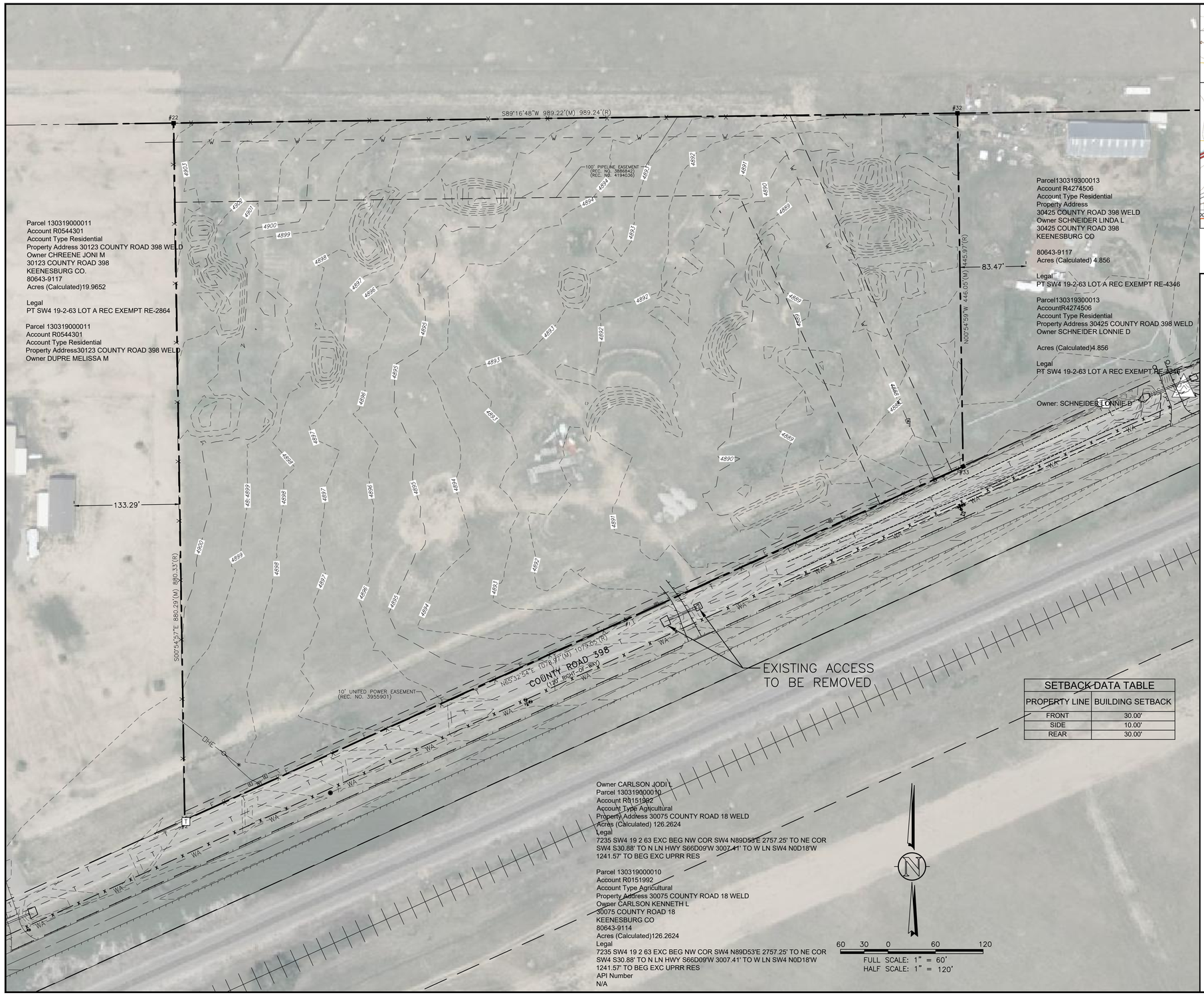
1. FULL ASPHALT DESIGN SECTION TO BE PER GEOTECHNICAL REPORT AND CITY STANDARDS (& DETAILS). SEE GEOTECHNICAL NOTES AND TYPICAL ASPHALT AND CONCRETE TRENCH PATCH DETAILS.
2. STANDARD ASPHALT INSTALLATIONS MUST FOLLOW TOWN STANDARDS.

STRIPING NOTES:

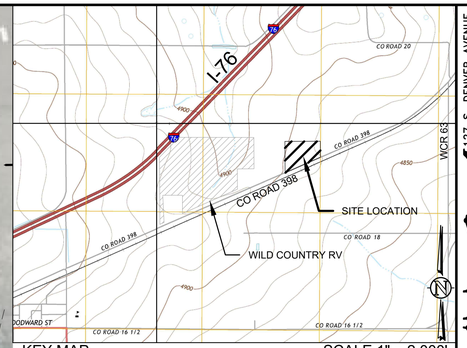
1. ALL STANDARD PARKING STALL STRIPING DIMENSIONS ARE 9.0 FEET WIDE BY 18.0 FEET LONG UNLESS OTHERWISE NOTED.
2. ALL STRIPING THIS PROJECT TO BE WHITE UNLESS OTHERWISE NOTED.
3. ALL HANDICAP STALLS TO BE SIGNED & STRIPED PER ADA SPECIFICATIONS, USE BLUE & WHITE SYMBOLOGY, VAN DENOTES VAN ACCESSIBLE STALLS, STD DENOTES STANDARD ACCESSIBLE STALLS.
4. STRIPING MATERIAL TO BE EPOXY FOR LONG LINES AND PRE-FORMED THERMO PLASTIC FOR ARROW LEGENDS.
5. ALL STRIPING SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
6. REMOVAL OF EXISTING STRIPING WHICH CONFLICTS WITH THE NEW STRIPING DESIGN WILL BE REQUIRED. PAVEMENT MARKING REMOVAL AND INSTALLATION WILL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.
7. LAYOUT OF STRIPING IN THE FIELD WILL REQUIRE APPROVAL BY THE TOWN OF KEENESBURG PRIOR TO APPLICATION OF FINAL STRIPING.

FIRELINE and WATERLINE CONSTRUCTION NOTES:

1. A MINIMUM OF 4.5 FEET OF COVER OVER THE TOP OF THE WATER LINES IS TO BE MAINTAINED. (5'-0" MINIMUM OF COVER FOR FIRE PROTECTION LINES.)
2. A MINIMUM VERTICAL SEPARATION OF 18" SHALL BE MAINTAINED AT ALL CROSSINGS, UNLESS OTHERWISE NOTED.
3. ALL LENGTHS OF WATER LINE AND FIRE PROTECTION LINES SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY FROM CENTER TO CENTER OF ALL VALVES, FITTINGS, BENDS, TEES, ETC. VERTICAL RISERS ARE MEASURED VERTICALLY.
4. P.V.C. FIRE PROTECTION LINES TO BE AWWA C-900, CLASS 200. D.I.P. FIRE PROTECTION LINES AND FITTINGS TO BE PRESSURE CLASS 350 AND COMPLY WITH AWWA C-110. ALL PIPELINE APPURTENANCES SHALL BE OF SIMILAR METALS (NO DISSIMILAR METALS).
5. TAPPING SADDLES TO BE USED ONLY FOR TEMPORARY BLOW O



SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'



KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE EX CONDITIONS PLAN FOR RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY DUNKER ENGINEERING CONSULTING, INC.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330
Western Engineering Consultants, inc LLC

No.	REVISION	DATE	BY
0	INITIAL RELEASE	03/19/19	CFC
1	RESUBMITAL PER TOWN COMMENTS	05/02/19	CFC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E. 60th AVENUE
BENNETT, CO 80102
(303)961-0031

EXISTING CONDITION & DEMO PLAN
ROBERTSON -KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

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CALL UNCC
THREE WORKING DAYS BEFORE YOU DIG
1-800-922-1987
www.uncc.org
UTILITY NOTIFICATION CENTER OF COLORADO

FOR REVIEW

ONLY VALID FOR CONSTRUCTION IF SEAL & ORIGINAL SIGNATURE ARE ON EACH SHEET

INITIAL PLAN RELEASE: 03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0003-EXAIR
SHEET 3AE OF 27

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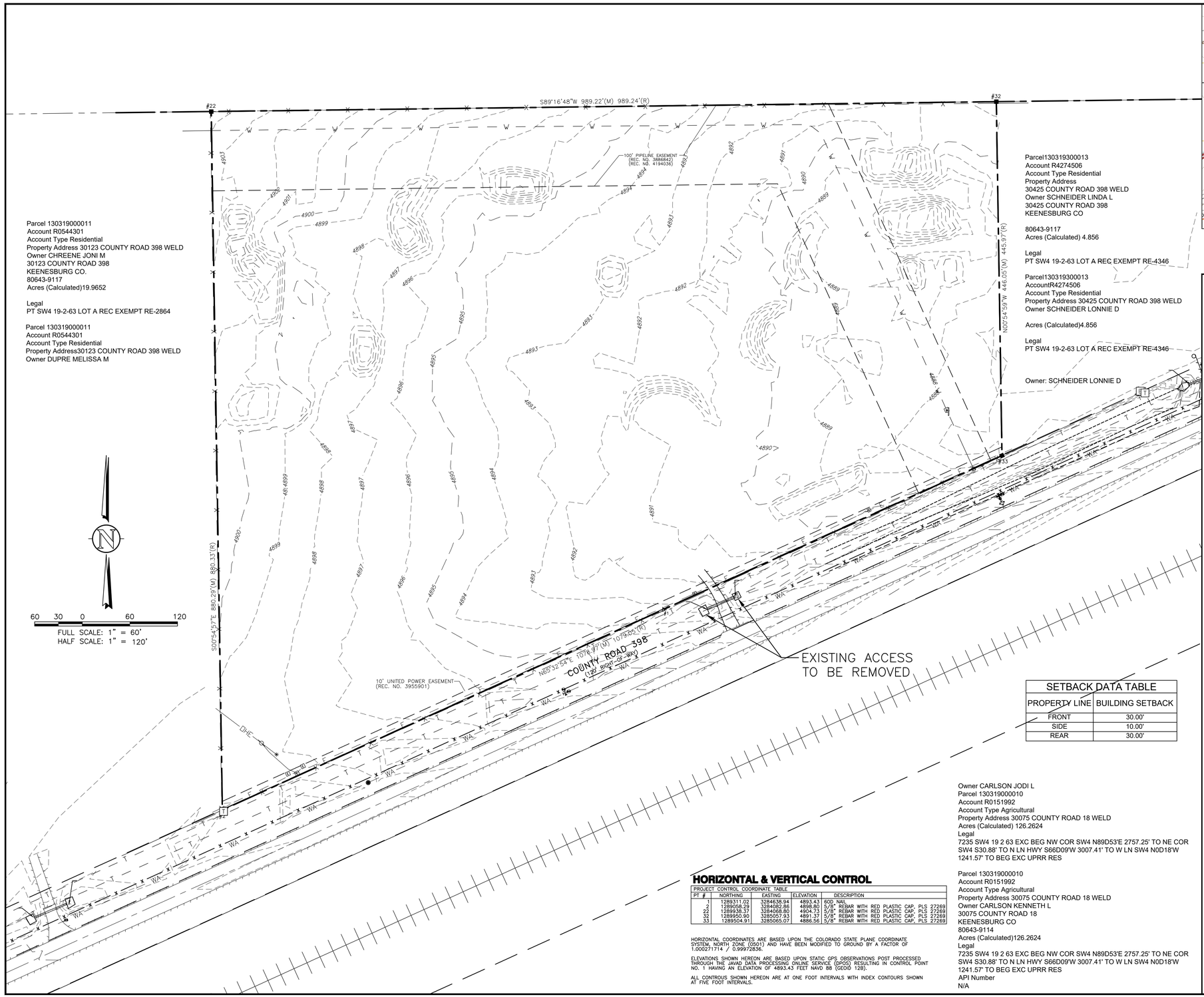


Parcel 130319000011
Account R0544301
Account Type Residential
Property Address 30123 COUNTY ROAD 398 WELD
Owner CHREENE JONI M
30123 COUNTY ROAD 398
KEENESBURG CO.
80643-9117
Acres (Calculated)19.9652

Legal
PT SW4 19-2-63 LOT A REC EXEMPT RE-2864

Parcel 130319000011
Account R0544301
Account Type Residential
Property Address30123 COUNTY ROAD 398 WELD
Owner DUPRE MELISSA M

Parcel130319300013
Account R4274506
Account Type Residential
Property Address
30425 COUNTY ROAD 398 WELD
Owner SCHNEIDER LINDA L
30425 COUNTY ROAD 398
KEENESBURG CO

80643-9117
Acres (Calculated) 4.856

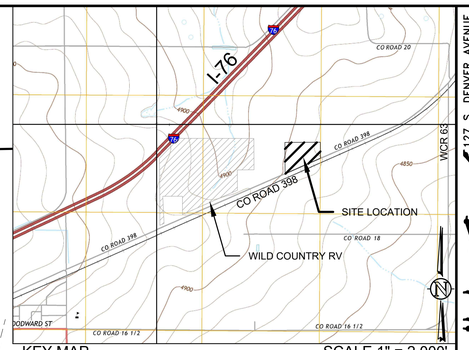
Legal
PT SW4 19-2-63 LOT A REC EXEMPT RE-4346

Parcel130319300013
AccountR4274506
Account Type Residential
Property Address 30425 COUNTY ROAD 398 WELD
Owner SCHNEIDER LONNIE D

Acres (Calculated)4.856

Legal
PT SW4 19-2-63 LOT A REC EXEMPT RE-4346

Owner: SCHNEIDER LONNIE D



KEY MAP SCALE 1" = 2,000'
SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

SETBACK DATA TABLE

PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

HORIZONTAL & VERTICAL CONTROL

PROJECT CONTROL COORDINATE TABLE

PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1289311.02	3284638.94	4893.43	60D NAIL
2	1289058.29	3284082.86	4898.80	5/8" REBAR WITH RED PLASTIC CAP, PLS 27269
22	1289938.37	3284068.80	4904.73	5/8" REBAR WITH RED PLASTIC CAP, PLS 27269
32	1289950.90	3285057.93	4891.37	5/8" REBAR WITH RED PLASTIC CAP, PLS 27269
33	1289504.91	3285065.07	4886.56	5/8" REBAR WITH RED PLASTIC CAP, PLS 27269

HORIZONTAL COORDINATES ARE BASED UPON THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH ZONE (0501) AND HAVE BEEN MODIFIED TO GROUND BY A FACTOR OF 1.0002717114 / 0.99972836.

ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (DPOS) RESULTING IN CONTROL POINT NO. 1 HAVING AN ELEVATION OF 4893.43 FEET NAVD 88 (GEOID 12B).

ALL CONTROUS SHOWN HEREON ARE AT ONE FOOT INTERVALS WITH INDEX CONTOURS SHOWN AT FIVE FOOT INTERVALS.

Owner CARLSON JODI L
Parcel 130319000010
Account R0151992
Account Type Agricultural
Property Address 30075 COUNTY ROAD 18 WELD
Acres (Calculated) 126.2624
Legal
7235 SW4 19 2 63 EXC BEG NW COR SW4 N89D53'E 2757.25' TO NE COR SW4 S30.88' TO N LN HWY S66D09'W 3007.41' TO W LN SW4 N0D18'W 1241.57' TO BEG EXC UPRR RES

Parcel 130319000010
Account R0151992
Account Type Agricultural
Property Address 30075 COUNTY ROAD 18 WELD
Owner CARLSON KENNETH L
30075 COUNTY ROAD 18
KEENESBURG CO
80643-9114
Acres (Calculated)126.2624
Legal
7235 SW4 19 2 63 EXC BEG NW COR SW4 N89D53'E 2757.25' TO NE COR SW4 S30.88' TO N LN HWY S66D09'W 3007.41' TO W LN SW4 N0D18'W 1241.57' TO BEG EXC UPRR RES
API Number
N/A

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330
Western Engineering Consultants, inc LLC

No.	REVISION	DATE	BY
0	INITIAL RELEASE	03/19/19	CFC
1	RESUBMITAL PER TOWN COMMENTS	05/19/20	CFC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
5053 E. 60th AVENUE
BENNETT, CO 80102
(303)961-0032

EXISTING CONDITION & DEMO PLAN
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
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INITIAL PLAN RELEASE:03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC

PROJECT NO.
01-0187.002.00

DOC CON #
0003-EX COND

SHEET
3 OF 27

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LUMINAIRE SCHEDULE						
SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
⊡	6	A	156.5	14852	0.900	LDRL-T2-F06-E

PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

RK ANNEX
15.060 ac.
656,013.23

#22 — #32 — #33

S89°16'48"W 989.22'(M) 989.24'(R)

412.66' S 89°16'48" W — 30' REAR SETBACK

576.56' S 89°16'48" W — 30' REAR SETBACK

S 01°24'55" E 183.29'

100' PIPELINE EASEMENT (REC. NO. 3886842) (REC. NO. 4194036)

S 00°54'57" E 201.44'

N 00°54'57" W 201.46'

N 00°54'59" W, 165.12

N 00°54'59" W 446.05'(M) 445.97'(R)

S 00°54'59" E 213.31'

S 00°54'59" E 6.00'

Lot 4
2.001 ac.
87,166.77

90.00 — 60.00

50' X 70' SEPTIC FIELD

CONCEPT. BLDG 6,400 SF

POND 3

N 01°24'46" W 4.

Lot 5
2.522 ac.
109,850.84

CONCEPT. BLDG 6,300 SF

50' X 70' SEPTIC FIELD

POND 6-7

N 89°23'50" E 246.43' — 10' SIDE SETBACK — 10' SIDE SETBACK

10' SIDE SETBACK — 10' SIDE SETBACK — N 89°25'50" E 272.07'

S 00°36'10" E 5.04'

N 66°58'20" E 294.45'

ROW
0.731 ac.
31,856.06

S 61°48'18" E 198.67'

70' X 50' SEPTIC FIELD

CONCEPT. BLDG 6,300 SF

Lot 3
1.652 ac.
71,947.78

70.00 — 90.00

CONCEPT. BLDG 6,300 SF

Lot 6
2.316 ac.
100,868.01

70' X 50' SEPTIC FIELD

POND 2-1

386.14' — 10' SIDE SETBACK — S 89°05'26" W — 10' SIDE SETBACK

183.44' — N 00°54'45" W 183.58'

543.36' — 10' SIDE SETBACK — 10' SIDE SETBACK — S 89°25'51" W

RK DRIVE

30' FRONT SETBACK

70' X 50' SEPTIC FIELD

CONCEPT BLDG 6,300 SF

Lot 2
1.697 ac.
73,924.00

Lot 7
2.181 ac.
94,990.83

CONCEPT BLDG 6,300 SF

50' X 70' SEPTIC FIELD

S 00°54'57" E 880.33'(R) 880.29'(M)

186.70

N 89°16'54" 419.98' — 10' SIDE SETBACK — 10' SIDE SETBACK

122.91' — 10' SIDE SETBACK

70' X 50' SEPTIC FIELD

CONCEPT BLDG 6,300 SF

POND 1

Lot 1
1.961 ac.
85,431.08

10' UNITED POWER EASEMENT (REC. NO. 3955901)

S 00°54'57" W 290.68'

500.00' — 10' SIDE SETBACK — S 65°32'56" W

N65°32'54"E 1078.97' — 1120' (RIGHT -29°-WD) — 1189.05'(R)

COUNTY ROAD NO. 398

850' ISD

930' ISD

EWS ANNEXATION NO. 2

UNION PACIFIC RAILROAD

700.79' RAILROAD ROW

LOT A
RE-2864

LOT A

Parcel 130319000011
Account R0544301
Account Type Residential
Property Address30123 COUNTY ROAD 398 WELD
Owner DUPRE MELISSA M

Parcel130319300013
AccountR4274506
Account Type Residential
Property Address 30425 COUNTY ROAD 398 WELD
Owner SCHNEIDER LONNIE D

Parcel Table		
Parcel	Area SF	ACRES
BUILDABLE AREA	624,157.2	14.33
RK ANNEX	656,013.2	15.06

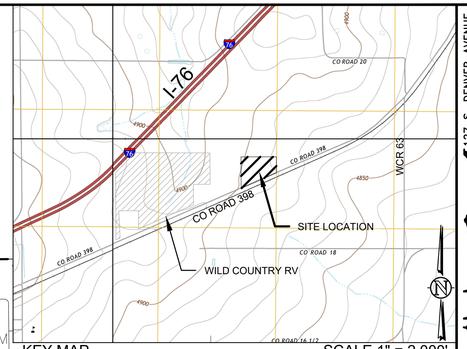
Parcel Table		
Parcel	Area SF	ACRES
Lot 1	85,431.1	1.96
Lot 2	73,924.0	1.70
Lot 3	71,947.8	1.65
Lot 4	87,166.8	2.00
Lot 5	109,850.8	2.52
Lot 6	100,868.0	2.32
Lot 7	94,990.8	2.18

LOT DATA TABLE			
	AREA (SF)	AREA (AC)	%
ZONING	A		
LOT INCLUDING ROW	656,016 SF	15.06 AC	100.00 %
ROW	31,856 SF	0.73 AC	4.86 %
NET LOT AREA NOT INCLUDING ROW	624,160 SF	14.33 AC	95.14 %
PROPOSED BUILDINGS	43,200 SF	0.99 AC	6.59 %
FUTURE BUILDING	28,000 SF	0.64 AC	4.27 %
TOTAL BUILDING	71,200 SF	1.63 AC	10.85 %
PROPOSED GRAVEL	367,168 SF	8.43 AC	55.97 %
PROPOSED ASPHALT PAVING	4,762 SF	0.11 AC	0.73 %
PROPOSED CONCRETE	2,303 SF	0.05 AC	0.35 %
PROPOSED LANDSCAPE AREA	178,726 SF	4.10 AC	27.24 %
PERCENTAGES BASED ON LOT SIZE NOT INCLUDING THE RIGHT-OF-WAY.			

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

60 30 0 60 120
FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'

INTERSECTION SIGHT TRIANGLES SHOWN PER AASHTO FIGURE 9-15, CASES B1 & B2, DESIGN SPEED = 55 MPH (POSTED SPEED = 45 MPH), USING COMBINATION TRUCK. LEFT TURN ISD = 930', RIGHT TURN ISD = 850'.



KEY MAP — SCALE 1" = 2,000'
SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

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SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
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Western Engineering Consultants, inc LLC

No.	REVISION	DATE	BY
0	INITIAL RELEASE	03/19/19	CFC
1	RESUBMITAL PER TOWN 05/02/19 COMMENTS	05/19/20	CFC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
5053 E. 160th AVENUE
BENNETT, CO 80102
(303)961-0053

SITE PLAN
ROBERTSON -KAISER ANNEX
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INITIAL PLAN RELEASE: 03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 004-SITE
SHEET 4 OF 27

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NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

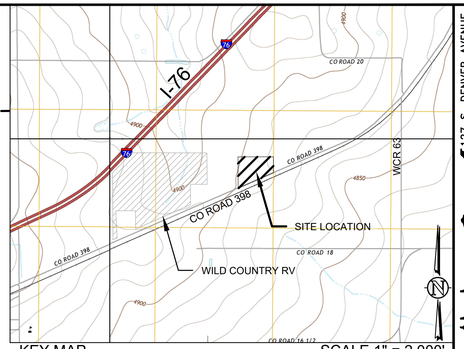
N89°53'18"E 2756.96' (BASIS OF BEARINGS)
S89°16'48"W 989.22'(M) 989.24'(R)

LUMINAIRE SCHEDULE						
SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
	6	A	156.5	14852	0.900	LDRL-T2-F06-E

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

SEE SOILOGIC DESIGN FOR OWTS DESIGNS

ALL AREAS OUTSIDE HARDSCAPE AND ROADBASE AREAS SHALL BE SEEDED per LANDSCAPE ARCHITECT OR WELD COUNTY SPECIFICATIONS.



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SCALE 1" = 2,000'
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Lot 5	109,850.8	2.52
Lot 6	100,868.0	2.32
Lot 7	94,990.8	2.18

UTILITY SERVICE SUMMARY		
TYPE	SIZE	COMMENT
GAS	TBD	PER EXCEL
ELECTRICAL	TBD	PER UNITED POWER
TELEPHONE	PER CENTURY LINK	CENTURY LINK
TELEVISION	PER SPECTRUM	PER SPECTRUM
WATER SERVICE	FINAL TBD	TOWN OF KEENESBURG INSTALL 1-1/2" TAP & SERVICE LINE STUBS TO EACH LOT-METER BY OTHERS
WATER MAIN	0'-8"	TOWN OF KEENESBURG
IRRIGATION	---	-
WASTEWATER	0'-8"	(OWTS) ON SITE WASTEWATER TREATMENT SYSTEM
FIRE	6"-3 NEW HYD	SOUTHEAST WELD COUNTY PROTECTION DISTRICT
FIRE SPRINKLER	BLDG PERMIT	FUTURE DESIGN BY OTHERS

ALL WATER LINE VALVES, BENDS, AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCKS INSTALLED. SEE ALSO JOINT RESTRAINT TABLE THIS SHEET.

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCK INSTALLATION.

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

UTILITY NOTES:

1. ALL WATER & FIRE MAINS SHALL HAVE 4.5' MIN COVER.
2. ALL WATER MAIN PIPE SHALL BE CLASS C-900 PVC. MAINS SHALL BE 8" DIAMETER, HYDRANT RUNS 6" DIAMETER.
3. ALL MAIN WATERLINE MECHANICAL JOINTS & FITTINGS SHALL BE RESTRAINED W/MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL (SEE ALSO FIRELINE & WATERLINE RESTRAINT NOTES). ALL JOINTS INCLUDING PUSH ON JOINTS SHALL BE RESTRAINED WITHIN RESTRAINT ZONES (BENDS, VALVES, TEES, ETC.) SEE ALSO JOINT RESTRAINT TABLE.
4. WATER SERVICE LINE SHALL BE 2" MIN DIAMETER.
5. ALL SANITARY MAINS SHALL HAVE 4.0' MIN COVER.
6. ALL SANITARY SERVICES SHALL HAVE 4.0' MIN COVER AT CONNECTION TO BUILDING AND AT CLEAN OUTS AND SLOPE 1.0% MIN THEREAFTER.
7. ALL SEWER LINE PIPE SHALL BE SDR-35 PVC. MAINS SHALL BE 8" DIAMETER, SEWER SERVICE SHALL BE 8" MIN DIAMETER.

60 30 0 60 120
FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'

NOTES

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SYMBOL LEGEND

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ST — EXISTING STORM LINE
S — EXISTING SANITARY LINE
W — EXISTING WATER LINE
G — EXISTING GAS LINE
FIBER — FIBER — EXISTING FIBER OPTIC LINE
T — EXISTING TELEPHONE LINE
SA — SA — PROPOSED SANITARY LINE
SS — SS — PROPOSED SANITARY SERVICE
STM — STM — PROPOSED STORM LINE
WA — WA — PROPOSED WATER LINE
WAS — WAS — PROPOSED WATER SERVICE
GA — GA — PROPOSED GAS LINE
EL — EL — PROPOSED ELECTRIC LINE
PH — PH — PROPOSED TELEPHONE LINE

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ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E. 60th AVENUE
BENNETT, CO 80102
(303) 961-0037

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PROJECT NO. 01-0187.002.00
DOC CON # 005-UTIL
SHEET 5 OF 27

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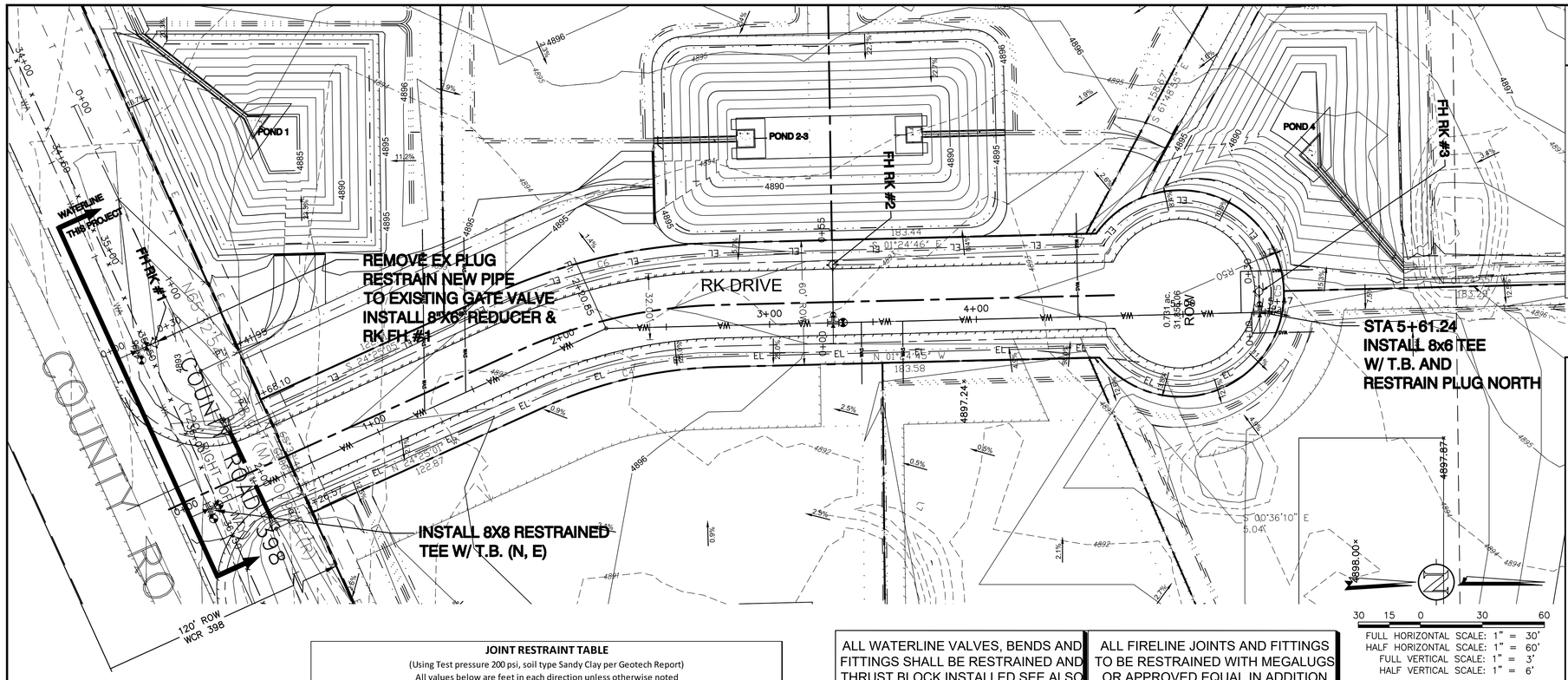
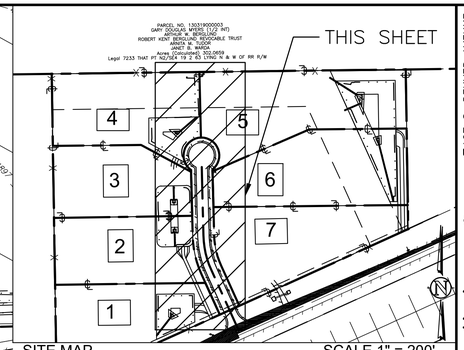




SITE MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

JOINT RESTRAINT TABLE

(Using Test pressure 200 psi, soil type Sandy Clay per Geotech Report)

All values below are feet in each direction unless otherwise noted

22.5	45	90	8"8 Tee	8"6 Tee	45 V bend	22.5 V bend	11.25 V bend	8"3 Reduction	Dead End
9	18	42	14	9	49 up, 12 lower	24 up, 6 lower	12 up, 3 lower	76	94

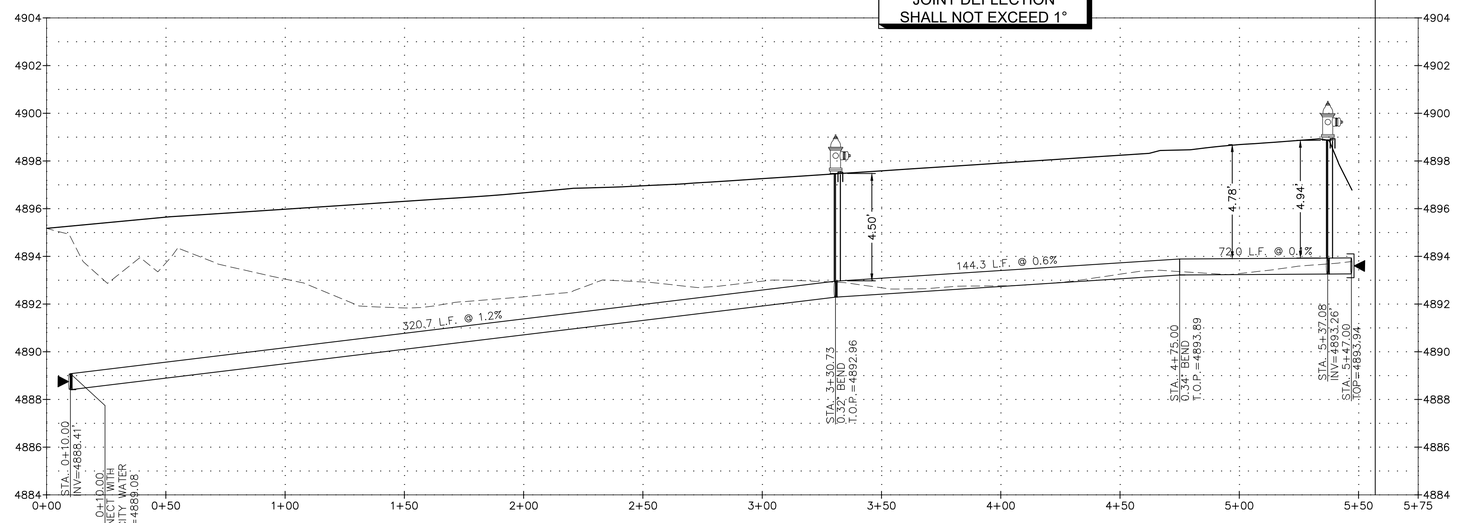
ALL WATERLINE VALVES, BENDS AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCK INSTALLED SEE ALSO JOINT RESTRAINT TABLE THIS SHEET

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCKS INSTALLATION

4.5' MIN COVER REQUIRED

JOINT DEFLECTION SHALL NOT EXCEED 1°

VERT. SCALE: 1" = 1'



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- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
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- EXISTING SANITARY LINE
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- PROPOSED SANITARY LINE
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WATER LINE PLAN & PROFILE
ROBERTSON -KAISER ANNEX
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CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 006-WTR P&P
SHEET 6 OF 27

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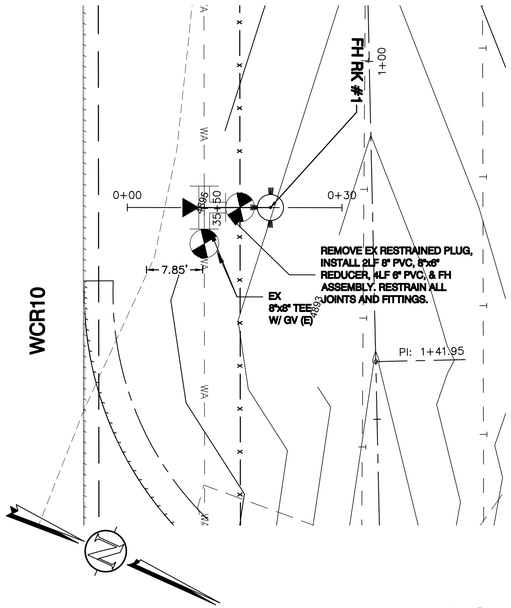
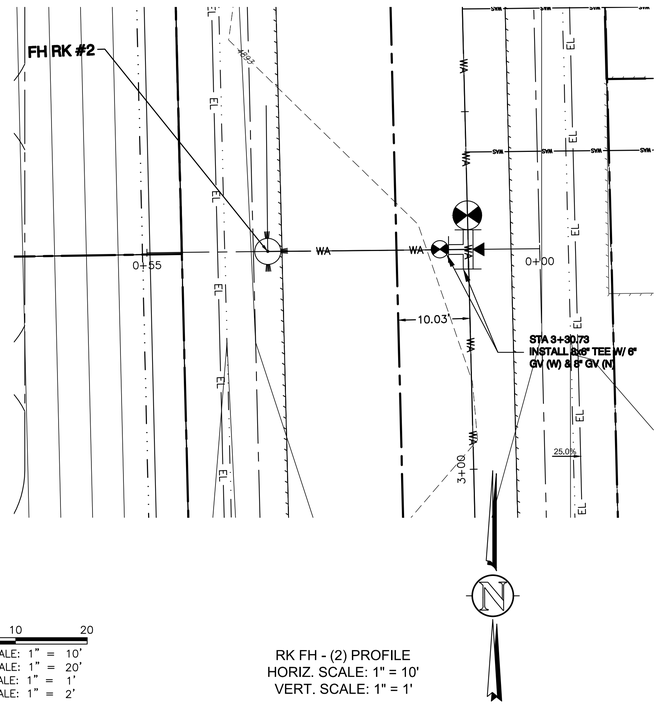


RK FH - (1) PROFILE
HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 1'



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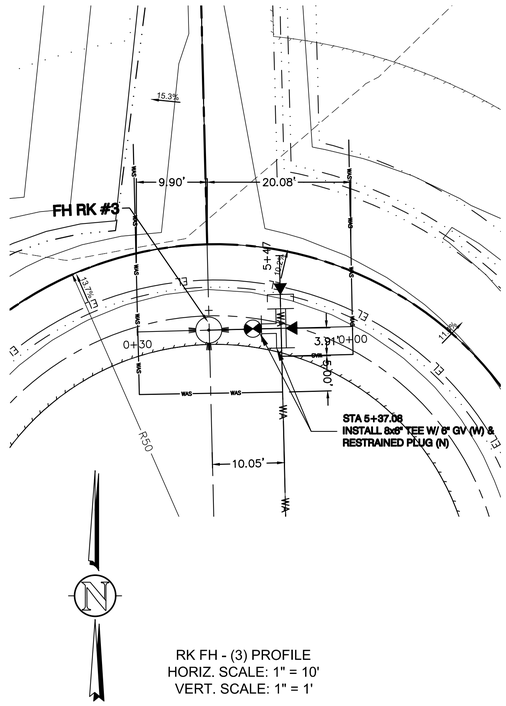
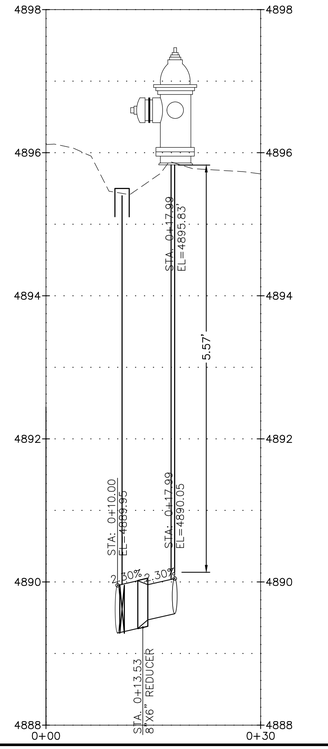
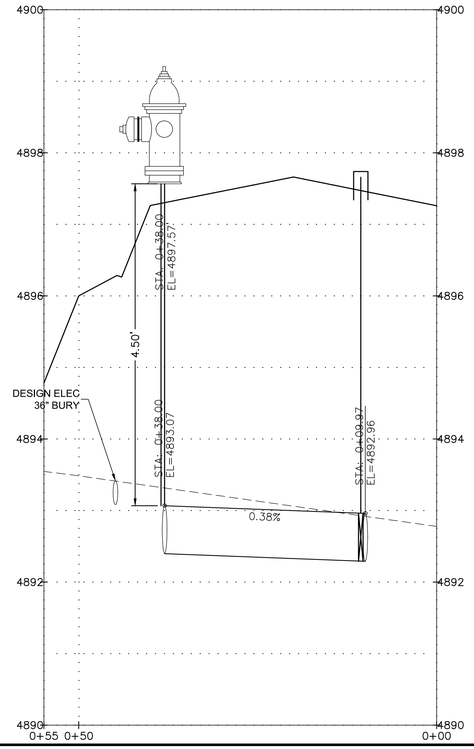


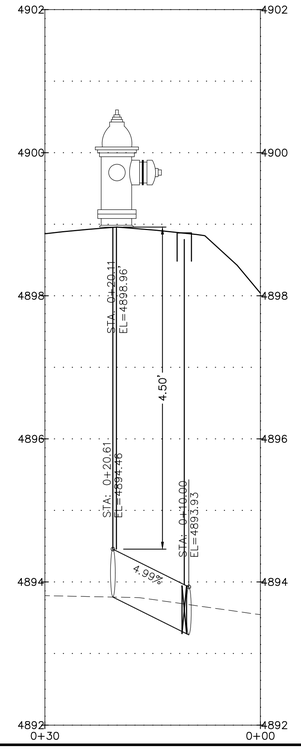
RK FH - (3) PROFILE
HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 1'

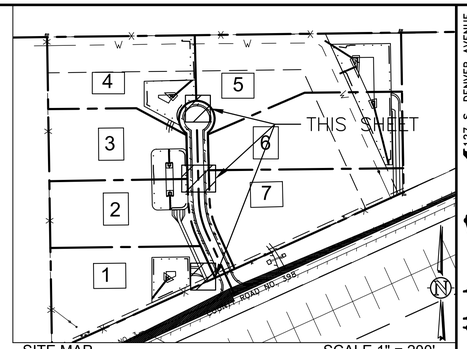
10 5 0 10 20

FULL HORIZONTAL SCALE: 1" = 10'
HALF HORIZONTAL SCALE: 1" = 20'
FULL VERTICAL SCALE: 1" = 1'
HALF VERTICAL SCALE: 1" = 2'









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IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

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ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E. 60th AVENUE
BENNETT, CO 80102
(303)961-0031

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DOC CON # 007-HYD P&P
SHEET 7 OF 27

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CONCEPT DESIGN

(EACH SITE SHALL BE DESIGNED PER INDIVIDUAL APPROVED SITE PLAN)

SHALLOW TRENCH SPECIFICATIONS AND DESIGN CALCULATIONS

TREATMENT UNIT:

1. SEE FINAL DESIGN BY OTHERS FOR TANK CONFIGURATION.
2. ATTENUATION = 1.25 * Qmax (1.25 * 2,257.5 = 2,825 GALLONS MINIMUM).
3. PUMP: SEE NOTES ABOVE.
4. ALARM/CONTROL PANEL LOCATION TO BE DETERMINED BY OWNER.
5. RISERS: TO SURFACE FOR EACH ACCESS LID.
6. PRESSURE RELEASE VALVE AT HIGH POINT.
7. DRAINBACK TO SEPTIC TANK AND FIELD.

DRAIN FIELD:

1. AVERAGE DAILY LOADING, 20 EMPLOYEES @ 35gal/DAY AVG = Q = 700 GPD
2. Qx = Qmax = 1.5 Q(avg daily) = 1050 GPD
3. PERCOLATION RATE = (T) =46 MPI per ROBERTSON RV PARK FIELD TEST ON JANUARY 14, 2014
4. MIN TRENCH ABSORPTION AREA - [(Qx) X 1.5 X ($T^{\frac{1}{2}}$) / 3.5 = 2884 SF
5. PROPOSED TRENCH ABSORPTION AREA - 3,000 SF (2.5' WIDE x 100' LONG x 12 TRENCHES).
6. TRENCH WIDTH = 30 INCHES.
7. NO GROUND WATER FOUND IN SOIL BORINGS.
8. LANDSCAPING BY OTHERS.

ARTICLE XIII - Operation and Maintenance

Sec. 30-13-10. - Responsibility.

The owner must be responsible for maintenance of an OWTS unless the responsibility has been contractually assigned to a tenant or third party or a public, quasi-public or political subdivision.

(Weld County Code Ordinance 2013-13)

Sec. 30-13-20. - Service label.

For higher level treatment systems or other components under a service contract, a clearly visible, permanently attached label or plate giving instructions for obtaining service must be placed at a conspicuous location.

(Weld County Code Ordinance 2013-13)

Sec. 30-13-30. - Monitoring and sampling.

A. For an OWTS for which monitoring of effluent is required, a delegated third party must collect and test effluent samples to ensure compliance with the provisions of this Regulation.

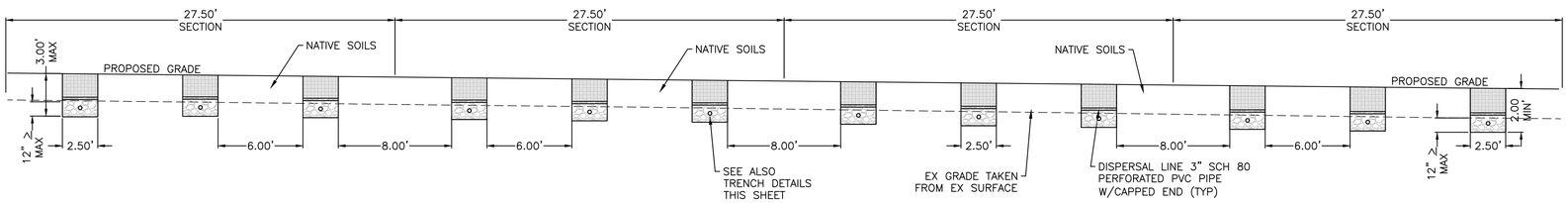
B. Sampling may be required by the Division in conjunction with an enforcement action.

C. Any owner or occupant of property on which an OWTS is located may request the Division to collect and test an effluent sample from the system. The Division may perform such collection and testing services. The owner or occupant must pay for these services.

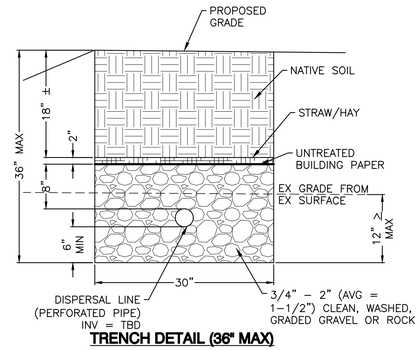
1. If the Division or a delegated third party collects and tests effluent samples, a fee not to exceed that which is allowed by the OWTS Act may be charged for each sample collected and tested. Payment of such charge must be stated in the permit as a condition for its continued use.
2. Conditions when the Division can require routine monitoring, including but not limited to:
   a. Indications of inadequate performance;
   b. Location in sensitive areas; and
   c. Experimental systems.

D. Sampling and analysis must be performed according to American Public Health Association, American Water Works Association and Water Environment Federation: *Standards Methods for the Examination of Water and Wastewater* , 21 st edition.

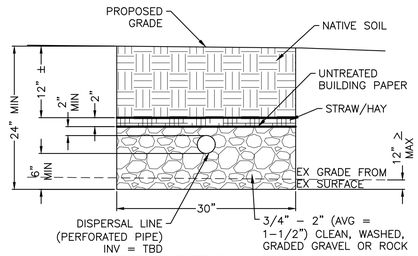
(Weld County Code Ordinance 2013-1; Weld County Code Ordinance 2017-10



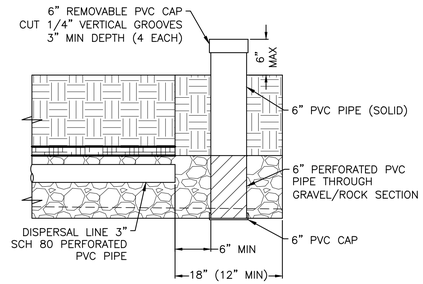
EXPECTED TYPICAL GRAVITY FIELD CROSS-SECTION



TRENCH DETAIL (36" MAX)



TRENCH DETAIL (24" MIN)



INSPECTION/MONITORING PORT DETAIL
SEE ALSO TRENCH DETAILS THIS SHEET

TRENCH DEPTH NOT TO BE MORE THAN 12" BELOW EXISTING GRADE.

PUMP SYSTEM NOTES BY OTHERS

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ROUGH GRADING

PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

N89°53'18"E 2756.96' (BASIS OF BEARINGS)

W COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

S00°54'57"E 880.29'(M) 880.33'(R)

S00°54'59"W 446.05'(M) 445.97'(R)

Lot 1 1.961 ac. 85,431.08
Lot 2 1.697 ac. 73,924.00
Lot 3 1.652 ac. 71,947.78
Lot 4 2.001 ac. 87,166.77
Lot 5 2.522 ac. 109,850.84
Lot 6 2.316 ac. 100,868.01
Lot 7 2.181 ac. 94,990.83

FH RK #1
FH RK #2
FH RK #3

CONCEPT BLDG 6,300 SF
CONCEPT BLDG 3,400 SF

50' X 70' SEPTIC FIELD
70' X 50' SEPTIC FIELD
60' X 70' SEPTIC FIELD

30' REAR SETBACK
10' SIDE SETBACK
30' FRONT SETBACK

100' PIPELINE EASEMENT (REC. NO. 3886842) (REC. NO. 4194036)
10' UNITED POWER EASEMENT (REC. NO. 3955901)

COUNTY ROAD NO. 398

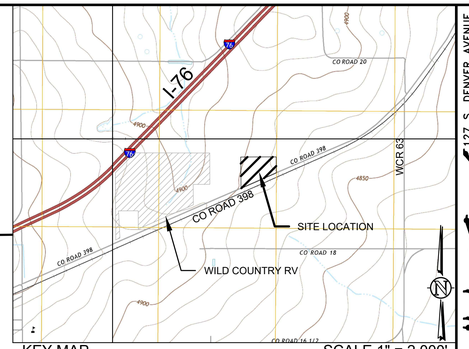
FWS ANNEXATION (REC. NO. 4268674)

UNION PACIFIC RAILROAD

RAILROAD ROW

60 30 0 60 120
FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'

THIS ROUGH GRADING DESIGNS EACH BUILDING PAD 8" BELOW FINISH GRADE.



KEY MAP
SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

SCALE 1" = 2,000'

NOTES

THIS PLAN IS INTENDED AS THE ROUGE GRADING PLAN FOR RK SUBDIVISION

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RK ANNEXATION ROUGH GRADING EARTHWORK SUMMARY

	Description	Area (sq. ft.)	Thickness (inches)	Volume (cubic ft)	Volume (cubic yds)	
A	TOTAL IMPORT		0 sft	0	-	A
			0.00 ac			
	Net Adjusted Hardscape Area		9.29 ac			
B1	EG to FG Surface to Surface net cut required (cy)				29,848	
B2	EG to FG Surface to Surface net (fill) required (cy)				(33,581)	
B	Surface to Surface net cut (fill) required (cy) after 10% fill shrinkage				(3,733)	B
	(B-A) Net Excess or (Shortage) cy needed in order to balance				**(3,733)**	**=B1-(B2+A)**
	Net adjustment to balance + raise, (lower) in feet over area noted above				(0.25)	
	% Unbalanced				100%	

Summary B includes assumed 10% shrinkage of fill material
Additional import may be necessary to achieve stabilization.
Additional import may be required and an excess material condition could occur.
No overexcavation, foundation excavation, or buried utility export, has been included in this table.
Not all landscape hardscape areas have been accounted for in this table.

5/20/2020 Revision 1

SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED WATER VALVE
PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
PROPOSED CONCRETE PAVING
PROPOSED GRAVEL

LINETYPE LEGEND

LOT / PROPERTY LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

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ROUGH GRADING PLAN
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CONCEPT SUBDIVISION FINAL GRADING

PARCEL NO. 130319000005
GARY DOUGLAS MYERS (1/2 INT)
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ROBERT KENT BERGLUND REVOCABLE TRUST
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NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

SHOWN FINAL GRADING FOR SUBDIVISION ONLY. EACH LOT WILL REQUIRE A FINAL GRADING PLAN PER EACH FINAL SITE LAYOUT CERTIFIED BY A PROFESSIONAL ENGINEER

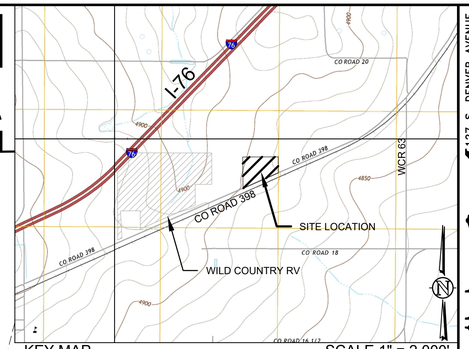
FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'

SEE DETAIL SHEET 10-OF

SEE DETAIL SHEET 10-396

COUNTY ROAD NO. 398

RAILROAD ROW



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SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

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SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

RK ANNEXATION FINAL GRADING EARTHWORK SUMMARY

	Description	Area (sq. ft.)	Thickness (inches)	Volume (cubic ft)	Volume (cubic yds)	
	ASPHALT	21,026	-12.0	-21,026	(779)	
	CONCRETE (7 LOTS @ 6300 SF/PAD)	44,100	-6.0	-22,050	(817)	
	GRAVEL	372,096	-6.0	-186,048	(6,891)	
	OVER-EX SOIL REPLACEMENT	0	0	0	-	
A	TOTAL IMPORT	437,222 sft		-229,124	(8,486)	A
		10.04 ac				
	Net Adjusted Hardscape Area	9.29 ac				
B1	EG to FG Surface to Surface net cut required (cy)				26,067	
B2	EG to FG Surface to Surface net (fill) required (cy)				(39,605)	
B	Surface to Surface net cut (fill) required (cy) after 10% fill shrinkage				(13,538)	B
	(B-A) Net Excess or (Shortage) cy needed in order to balance				**(5,052)**	**=B1-(B2+A)**
	Net adjustment to balance + raise, (lower) in feet over area noted above				(0.34)	
	% Unbalanced				37%	
	Assumed Site Stripping's under new asphalt, conc, bldg (4" over 65,126 sf)				804	
	Assumed Overall Site Stripping's (4" over 9.95 ac) (372096 sf)				4,594	

Summary B includes assumed 10% shrinkage of fill material
Additional import may be necessary to achieve stabilization.
Additional import may be required and an excess material condition could occur.
No overexcavation, foundation excavation, or buried utility export, has been included in this table.
Not all landscape hardscape areas have been accounted for in this table.

5/20/2020 Revision 1

SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
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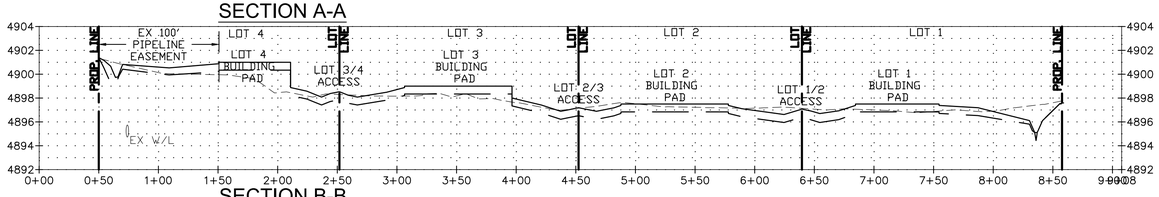
GRADING CROSS-SECTIONS

SECTION A-A



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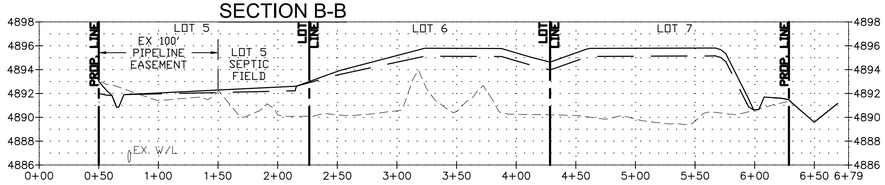

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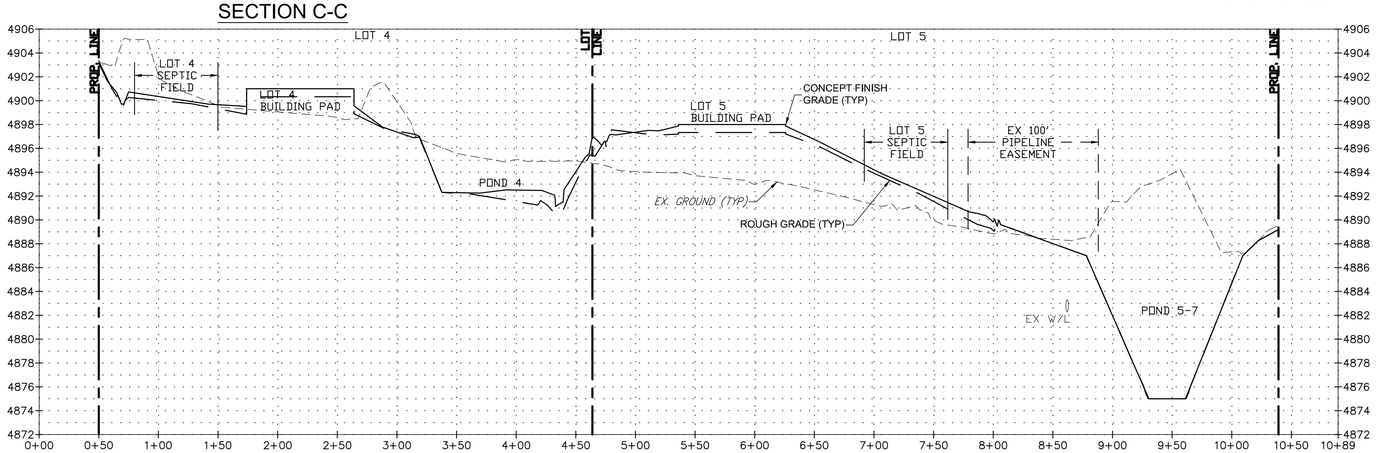
FULL HORIZONTAL SCALE: 1" = 60'
HALF HORIZONTAL SCALE: 1" = 120'
FULL VERTICAL SCALE: 1" = 6'
HALF VERTICAL SCALE: 1" = 12'

SECTION C-C



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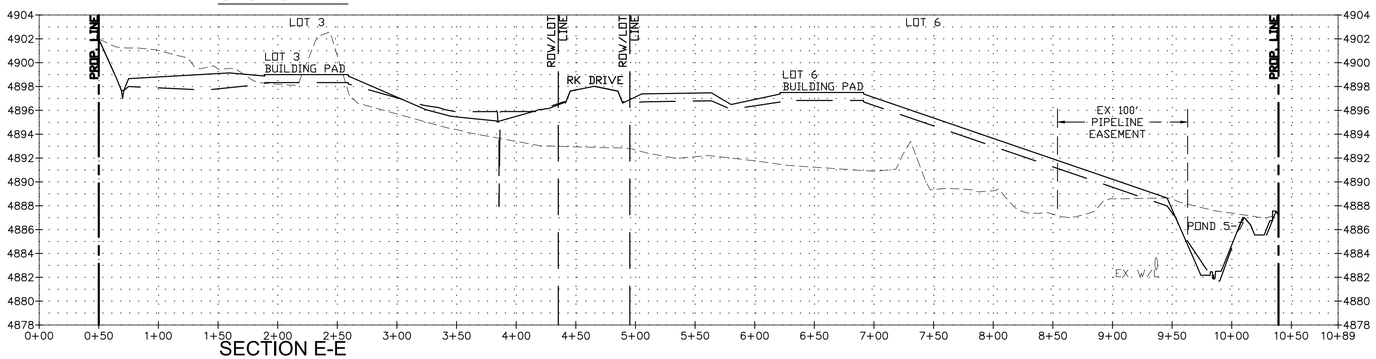

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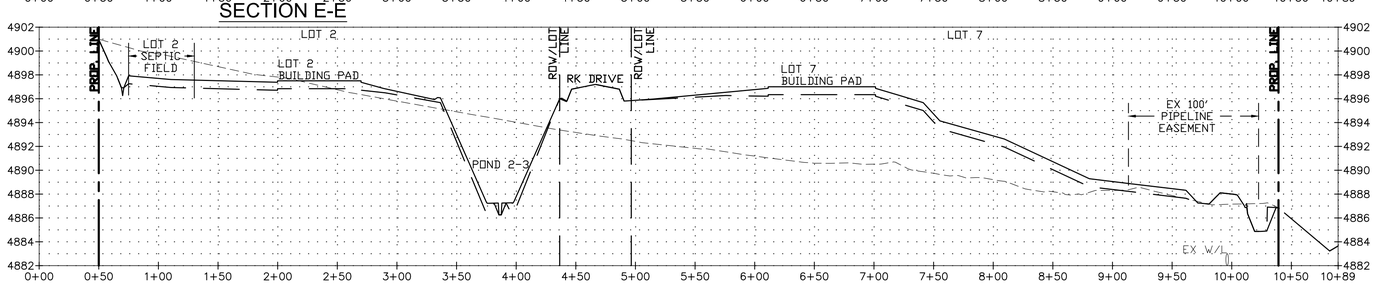

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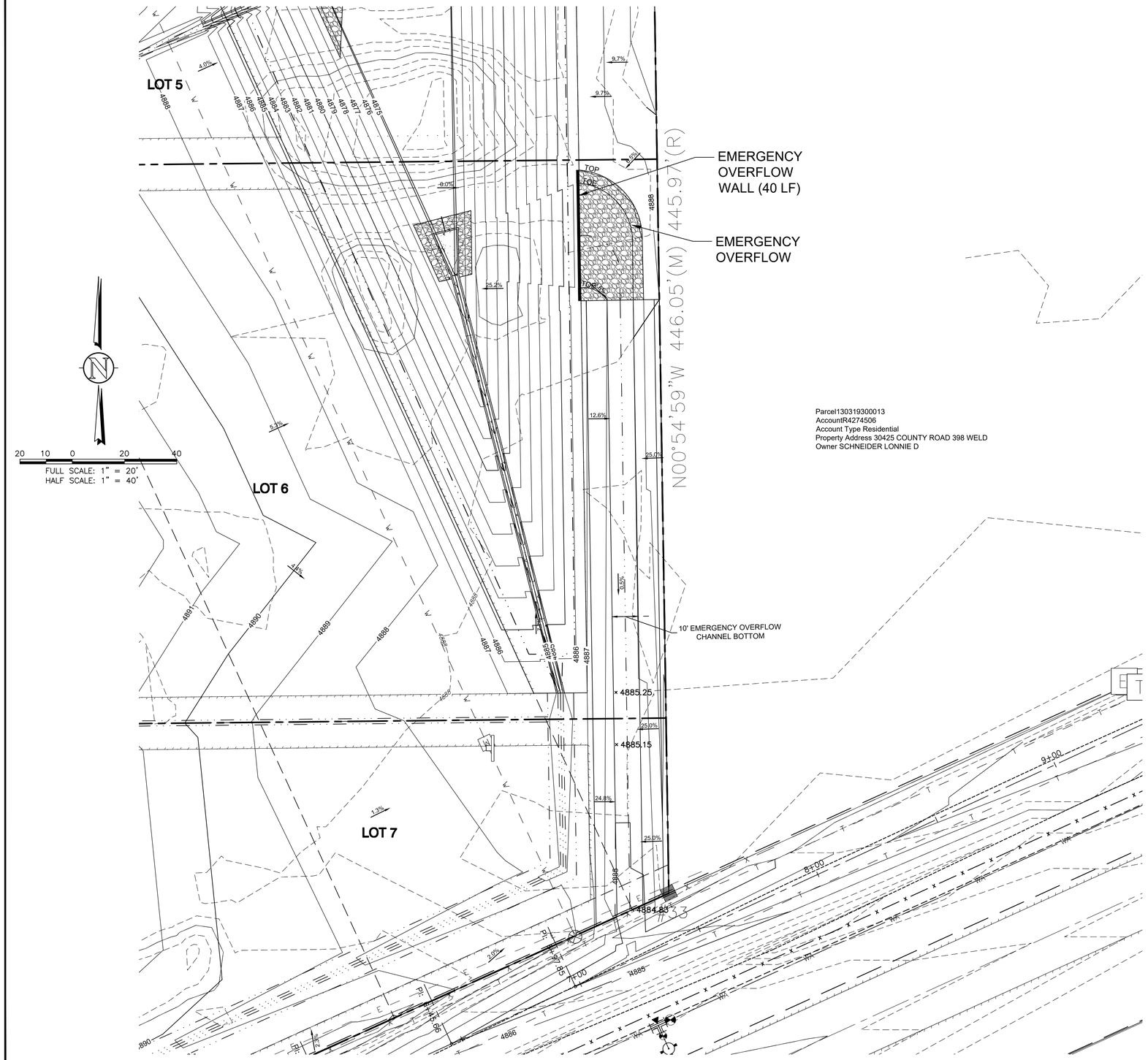

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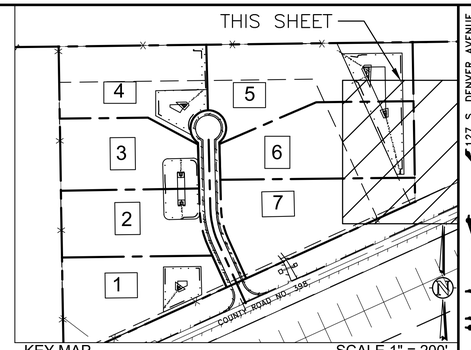
AccountR4274506
Account Type Residential
Property Address 30425 COUNTY ROAD 398 WELD
Owner SCHNEIDER LONNIE D



KEY MAP SCALE 1" = 200'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

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SEE "ROBERTSON-LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY - DATED NOVEMBER 04, 2013.

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SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- OHE — EXISTING OVERHEAD ELEC
- E — EXISTING ELECTICAL LINE
- ST — EXISTING STORM LINE
- S — EXISTING SANITARY LINE
- W — EXISTING WATER LINE
- G — EXISTING GAS LINE
- FIBER — EXISTING FIBER OPTIC LINE
- T — EXISTING TELEPHONE LINE
- SA — PROPOSED SANITARY LINE
- SS — PROPOSED SANITARY SERVICE
- STM — PROPOSED STORM LINE
- WA — PROPOSED WATER LINE
- WAS — PROPOSED WATER SERVICE
- GA — PROPOSED GAS LINE
- EL — PROPOSED ELECTRIC LINE
- PH — PROPOSED TELEPHONE LINE

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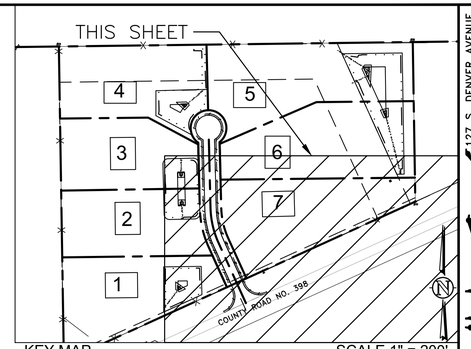
FULL SCALE: 1" = 40'
HALF SCALE: 1" = 80'



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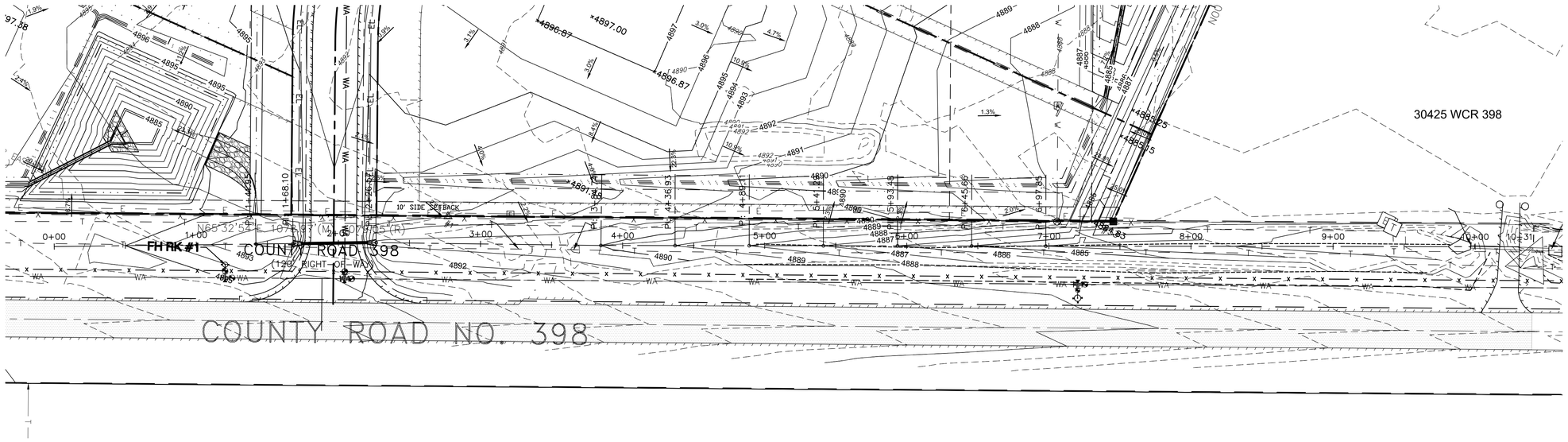

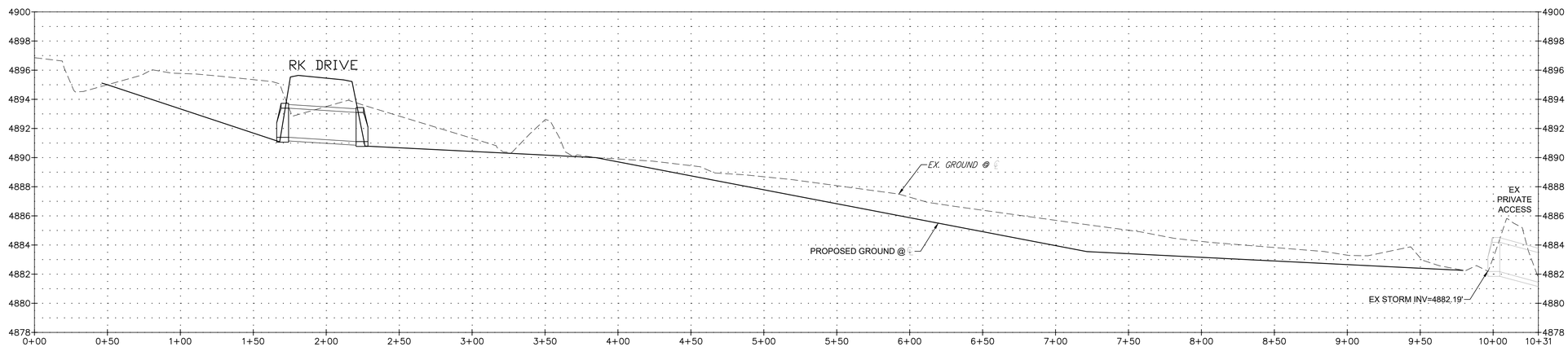

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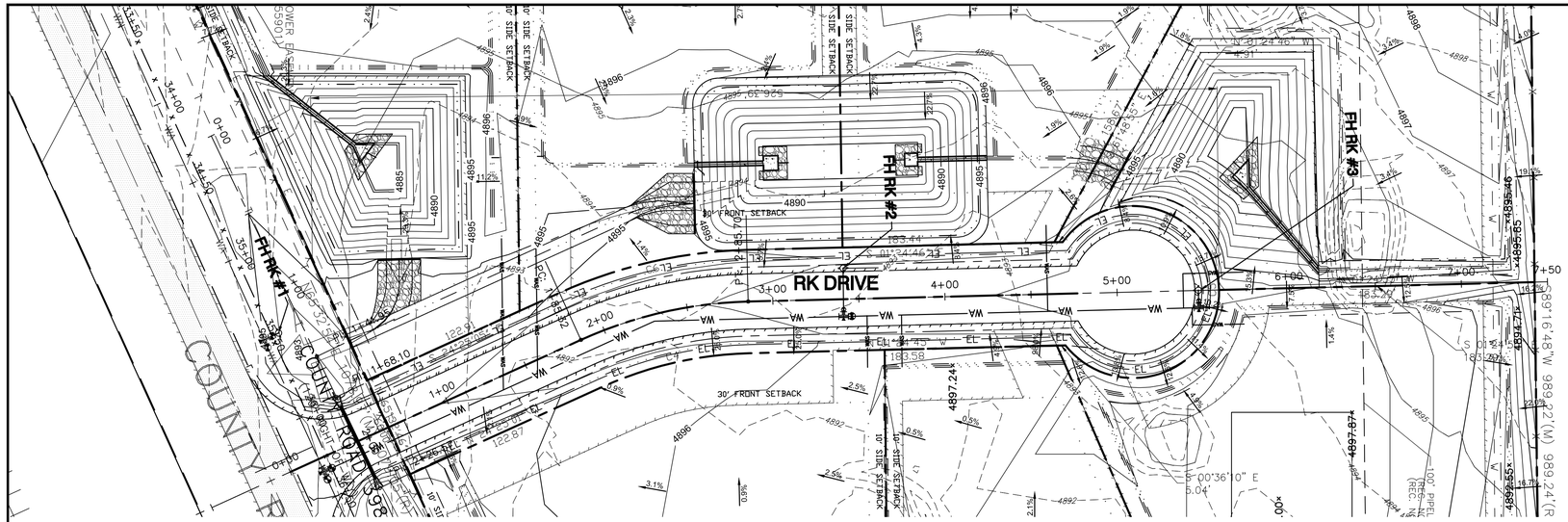

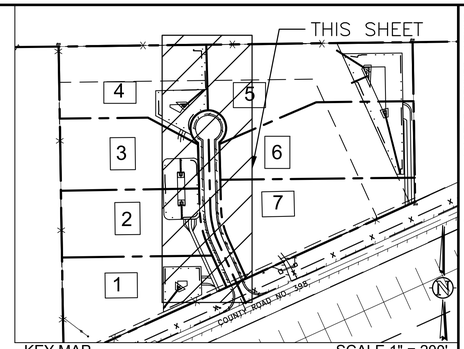

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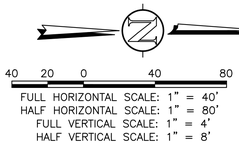

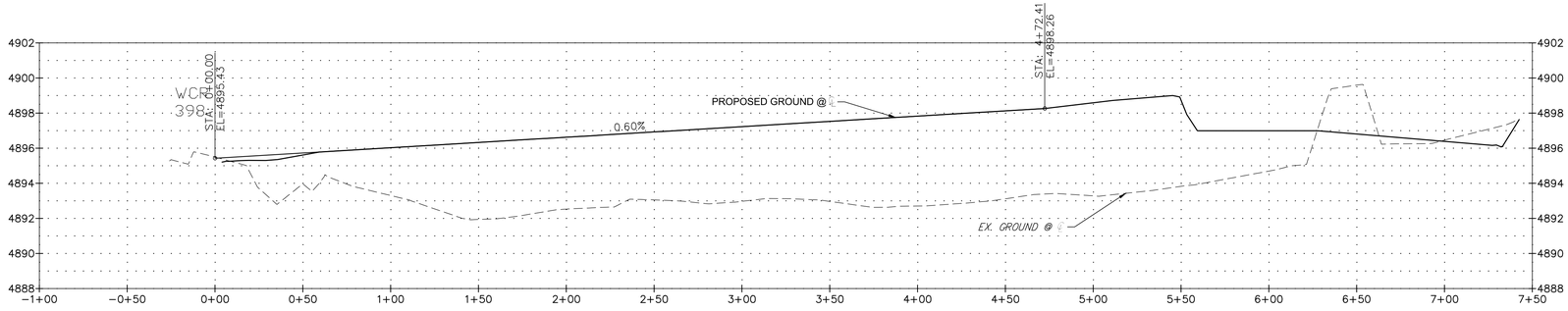

NOTES

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SEE "ROBERTSON–LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY – DATED NOVEMBER 04, 2013.

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22.5 DEG BEND
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RESTRAINED TEE
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PIPE CROSSOVER
MANHOLE
EXISTING ASPHALT PAVING
PROPOSED ASPHALT PAVING
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LINETYPE LEGEND

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RIGHT OF WAY LINE
EASEMENT
SETBACK
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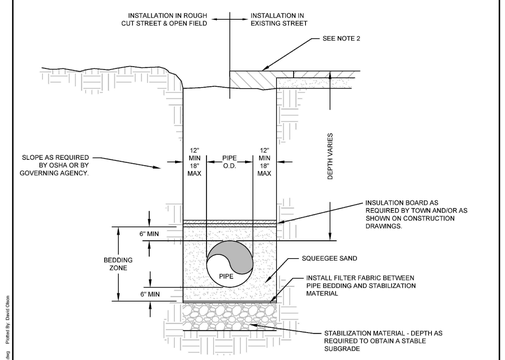
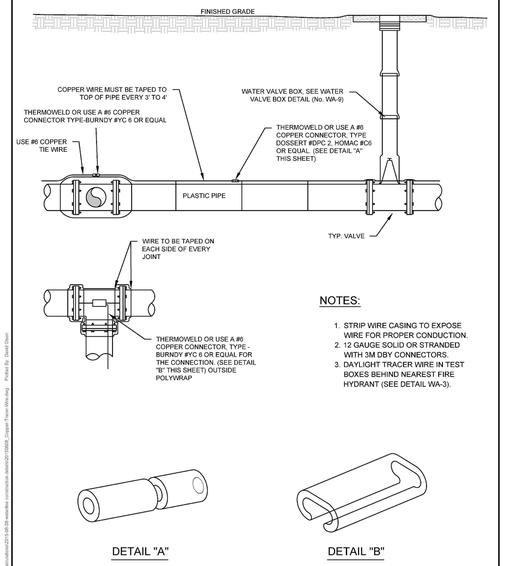


NOTES:

1. REFER TO CONSTRUCTION SPECIFICATIONS FOR STABILIZATION, FILTER FABRIC, BEDDING, BACKFILL MATERIAL, AND COMPACTION REQUIREMENTS.
2. REFER TO SPECIFICATIONS, CURRENT VERSION, FOR STREET CUT REQUIREMENTS.
3. AN OVER EXCAVATED TRENCH SHALL BE BACKFILLED AND COMPACTED (AS PER SPECIFICATIONS) UNDER THE DIRECTION OF THE TOWN.
4. PIPELINE SHALL BE LAID IN A PROPOSED FILL AREA PRIOR TO AREA BEING COMPLETELY FILLED TO PROPOSED FINAL GRADES AND COMPACTED PER TOWN SPECIFICATIONS.
5. COMPACTION TESTING METHODS AND FREQUENCY SHALL BE IN ACCORDANCE WITH PUBLIC WORKS CONSTRUCTION SPECIFICATIONS.
6. TRENCHES SHALL BE SHORED, BRACED, OR SHEETED AS NECESSARY FOR THE SAFETY AND PROTECTION OF PERSONNEL AND OTHER UTILITIES.
7. INSULATION BOARD SHALL BE 2" THICK MINIMUM, CONSISTING OF TWO BOARDS (1" MINIMUM PER BOARD) WITH OFFSET JOINTS PLACED ACROSS FULL TRENCH WIDTH.

N.T.S.
WA-1

TRENCH CROSS SECTION

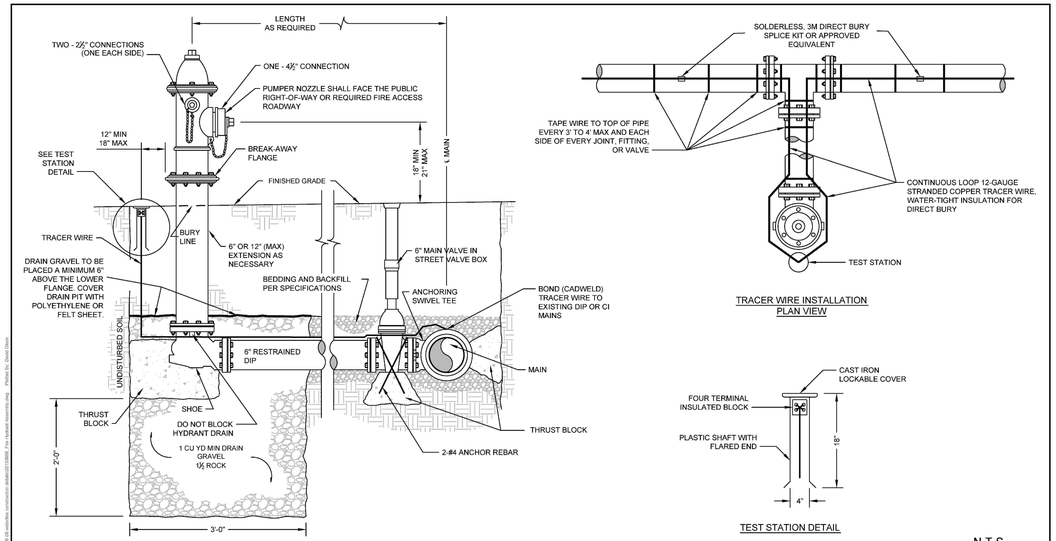


NOTES:

1. STRIP WIRE CASING TO EXPOSE WIRE FOR PROPER CONDUCTION.
2. 12 GAUGE SOLID OR STRANDED WITH 3M DBY CONNECTORS.
3. DAYLIGHT TRACER WIRE IN TEST BOXES BEHIND NEAREST FIRE HYDRANT (SEE DETAIL WA-3).

N.T.S.
WA-2

COPPER TRACER WIRE DETAIL ON PVC PIPE

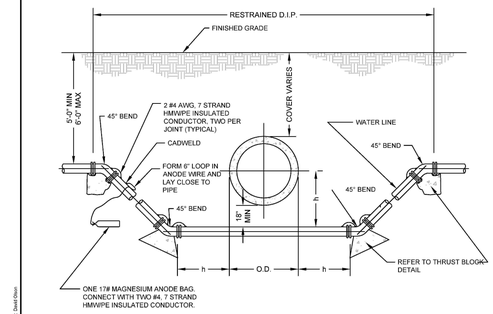


NOTES

1. MINIMUM DEPTH OF BURY 5'-0" FROM FINISHED GRADE TO TOP OF PIPE.
2. PROVIDE POLYETHYLENE BOND BREAKER BETWEEN ALL PIPE/FITTINGS AND POURED CONCRETE.
3. HYDRANT TO BE WATEROUS PACER 250 WITH NATIONAL STANDARD THREADS.

N.T.S.
WA-3

FIRE HYDRANT ASSEMBLY WITH TRACER WIRE INSTALLATION

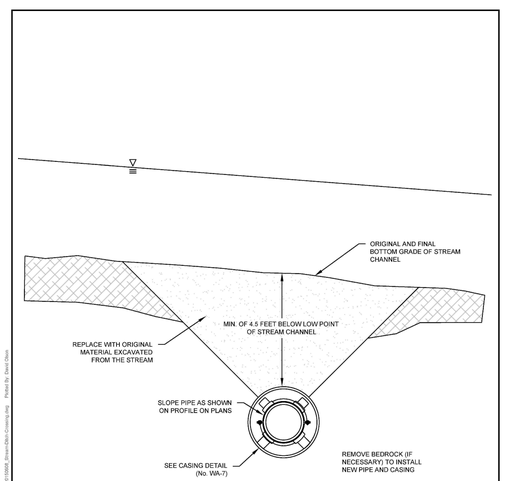


NOTES:

1. PIPE MAY BE RESTRAINED BY MECHANICAL JOINT PIPE RESTRAINTS OR RESTRAINED JOINT PIPE.
2. CONDUCTOR WIRE SHALL BE CAD WELDED TO PIPE, BOTH ENDS, OR BONDING STRAP BOLTED TO PIPE. WIRE SHALL HAVE A MINIMUM OF 2" SLACK.
3. ANODE SHALL BE COVERED WITH FINE SOIL CONTAINING NO ROCKS OR DIRT CLUMPS. SOIL SHALL BE COMPACTED AROUND ANODE.
4. CONSTRUCT CADWELD CONNECTIONS PER WATER AND SEWER STANDARD DRAWINGS AND CONSTRUCTION SPECIFICATIONS.

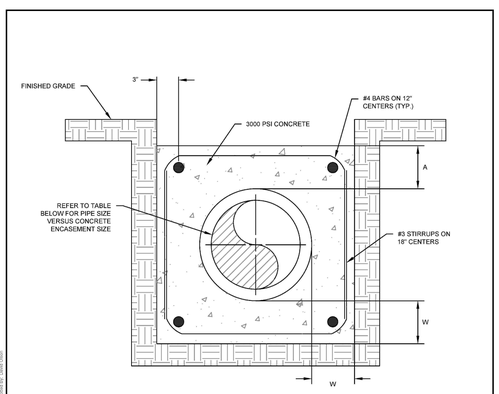
N.T.S.
WA-4

WATER LINE LOWERING



N.T.S.
WA-5

STREAM/DITCH CROSSING



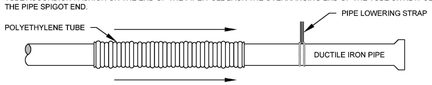
PIPE SIZE	W	A
6"	4"	4"
8"	4"	4"
10"	4"	4"
12"	4"	4"
15"	4"	4"
16"	4"	4"
18"	5"	5"
21"	5"	5"
24" +	6"	6"

NOTE:
REBAR & STIRRUPS SHALL BE EPOXY COATED IF THE ENCASEMENT IS UNDER A STREAM OR DRAINAGEWAY AND IF THE ENCASEMENT IS IN HIGH GROUND WATER

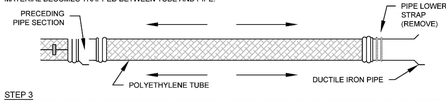
N.T.S.
WA-6

CONCRETE ENCASEMENT

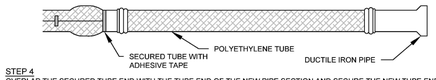
STEP 1
CUT A SECTION OF POLYETHYLENE (PE) TUBE APPROXIMATELY 2' LONGER THAN THE PIPE SECTION. REMOVE ALL DEBRIS FROM THE PIPE SURFACE. SLIP THE TUBE AROUND THE END OF THE PIPE, STARTING AT THE SPIGOT END. BUNCH THE TUBE ACCORDION-FASHION ON THE END OF THE PIPE. PULL BACK THE OVERHANGING END OF THE TUBE UNTIL IT CLEARS THE PIPE SPIGOT END.



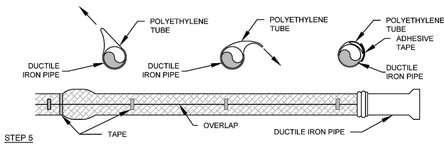
STEP 2
LOWER THE PIPE INTO THE TRENCH AND MAKE UP THE PIPE JOINT WITH THE PRECEDING SECTION OF PIPE. SPREAD THE TUBE OVER THE ENTIRE PIPE BARREL AND REMOVE THE PIPE LOWERING STRAP. MAKE SURE NO DIRT OR BEDDING MATERIAL BECOMES TRAPPED BETWEEN TUBE AND PIPE.



STEP 3
OVERLAP THE JOINT WITH THE TUBE FROM THE PRECEDING LENGTH OF PIPE AND SECURE IT INTO PLACE WITH THREE CIRCUMFERENTIAL TURNS OF 2" ADHESIVE TAPE.



STEP 4
OVERLAP THE SECURED TUBE END WITH THE TUBE END OF THE NEW PIPE SECTION AND SECURE THE NEW TUBE END IN PLACE WITH THE TAPING PROCEDURE IN STEP 3. TAKE UP THE SLACK IN THE TUBE ALONG THE BARREL OF THE PIPE TO MAKE A SNUG, BUT NOT TIGHT, FIT BY FOLDING THE EXCESS TUBE BACK OVER THE TOP OF THE PIPE. SECURE THE TUBE AT 3' TO 5' INTERVALS ALONG THE PIPE BARREL WITH ADHESIVE TAPE.



STEP 5
REPAIR ANY RIPS, TEARS, OR OTHER DAMAGE WITH ADHESIVE TAPE. CAREFULLY BACKFILL PIPE. TO PREVENT DAMAGE TO THE TUBE DURING BACKFILL, ALLOW ADEQUATE SLACK IN THE TUBE AT THE JOINT. AVOID DAMAGING THE TUBE WHEN USING TAMPING DEVICES.

N.T.S.
WA-8

POLYETHYLENE WRAP

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Western Engineering Consultants, inc LLC

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1	RESUBMITAL PER TOWN COMMENTS	05/19/20	CFC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
5053 I.E. 60th AVENUE
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INITIAL PLAN RELEASE: 03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0012-WTRDTLS
SHEET 12 OF 27

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Date: 12/13/2019 2:53:37 PM, K:\Keenesburg\Annex\Civil\1-06-08 standard construction details\WA-Stream Ditch Crossing.dwg, Plotted By: David Olson
Date: 12/17/2019 8:46:18 AM, K:\Keenesburg\Annex\Civil\1-06-08 standard construction details\WA-Concrete Encasement.dwg, Plotted By: David Olson
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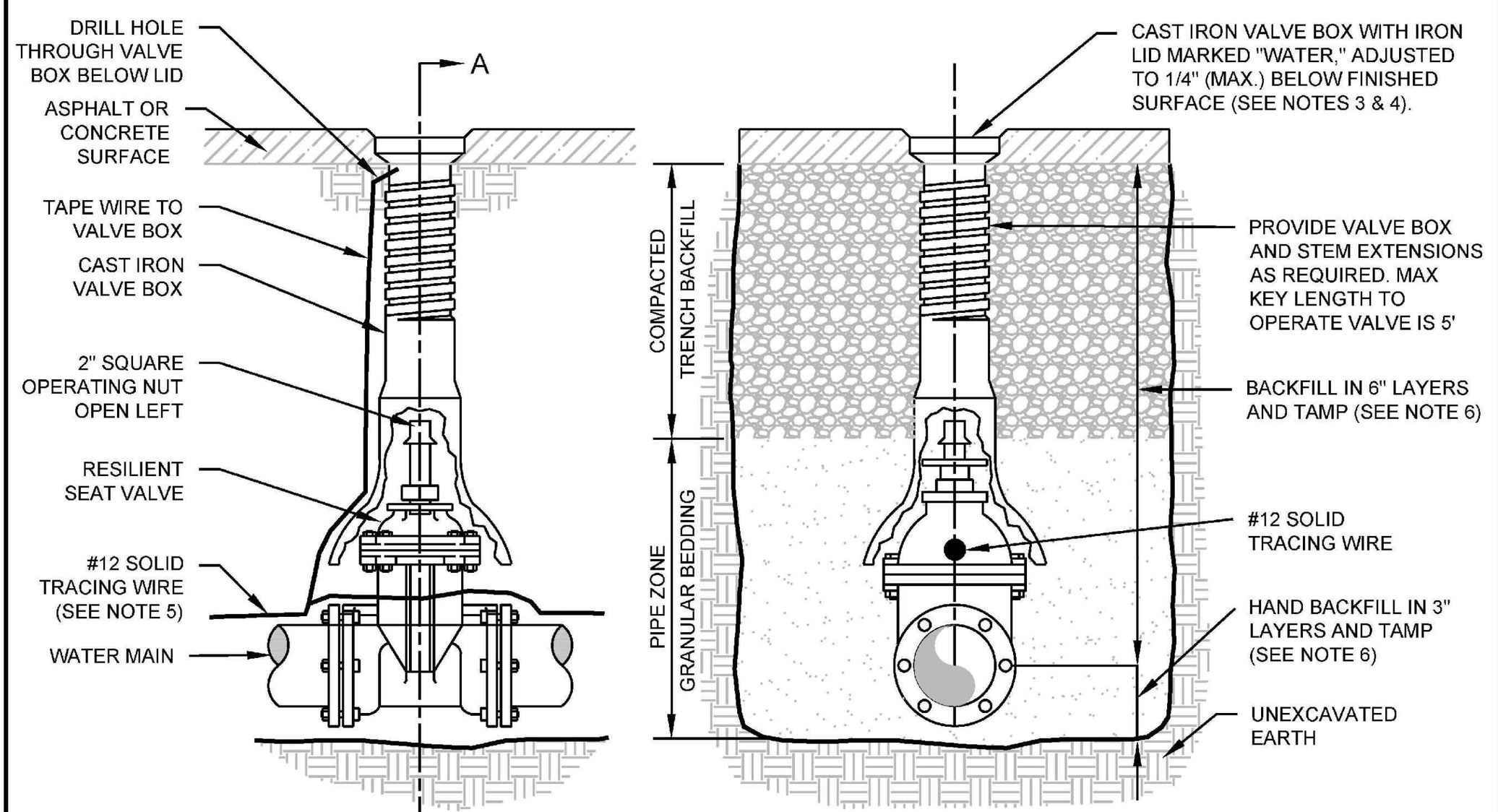
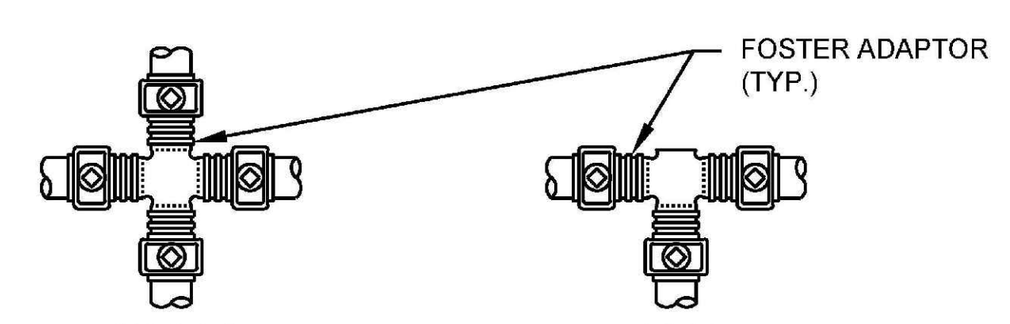


SECTION A-A
(GATE VALVE SHOWN, SIMILAR FOR BUTTERFLY VALVE)

NOTES:

1. ALL VALVES SHALL BE ENCASED IN A MINIMUM 8 MIL. POLYETHYLENE WRAP. A 2" WIDE, TEN MIL. THICK POLYETHYLENE PRESSURE-SENSITIVE TAPE SHALL BE USED TO CLOSE SEAMS, SECURE TO PIPE OR HOLD OVERLAPS.
2. ALL VALVES BOXES SHALL BE OF CAST IRON CONSTRUCTION, TWO PIECE THREADED ADJUSTABLE DESIGN PER DEPARTMENT STANDARDS. ALL-THREAD RODS AND NUTS SHALL BE 316 STAINLESS STEEL.
3. WITHIN OPEN ARES OR AREAS TO BE DEVELOPED IN THE FUTURE, VALVE BOX LID MAY BE DEPRESSDE OR HAVE A CONCRETE PAD. MARK VALVE LOCATION WITH FLEXIBLE MARKER POST.
4. FOR FIRE SERVICE LINES ONLY: LIDS SHALL BE LOCKING TYPE.
5. TRACER WIRE TO BE TYPICALLY DAYLIGHTED AT FIRE HYDRANT. IF HYDRANT IS NOT AVAILABLE, PROVIDE AT MAINLINE VALVE AS SHOWN ABOVE AND COIL A MINIMUM OF 3' OF TRACER WIRE IN VALVE BOX.
6. SEE SPECIFICATIONS FOR COMPACTION AND TESTING REQUIREMENTS.
7. VALVES TYPICALLY REQUIRED AS SHOWN, UNLESS OTHERWISE APPROVED BY THE DEPARTMENT, SINCE OPERATIONAL CONSIDERATIONS MAY RESULT IN FEWER VALVES BEING REQUIRED TO BE INSTALLED.
8. RESTRAINT FOR VALVES TO A FITTING CAN BE MADE DIRECTLY WITH FOSTER ADAPTORS OR BY MECHANICAL JOINT RESTRAINT. EXAMPLE FOSTER ADAPTOR CONNECTIONS ARE DETAILED BELOW.

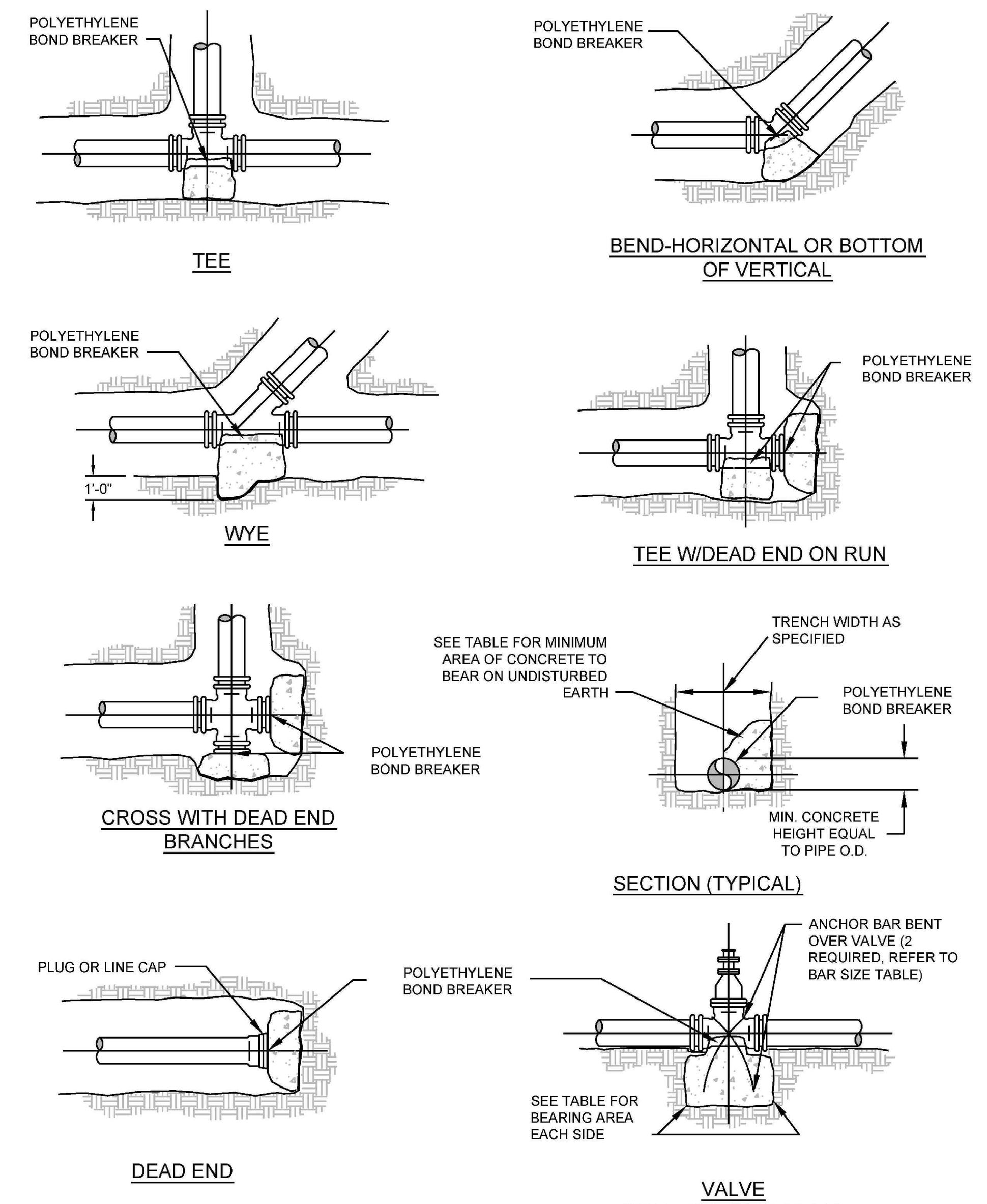


N.T.S.
WA-9

PROJECT: 800100 TASK: 001 DATE: 12-17-2015
PREPARED BY: TELESTO SOLUTIONS INCORPORATED

VALVE BOX

PREPARED FOR:

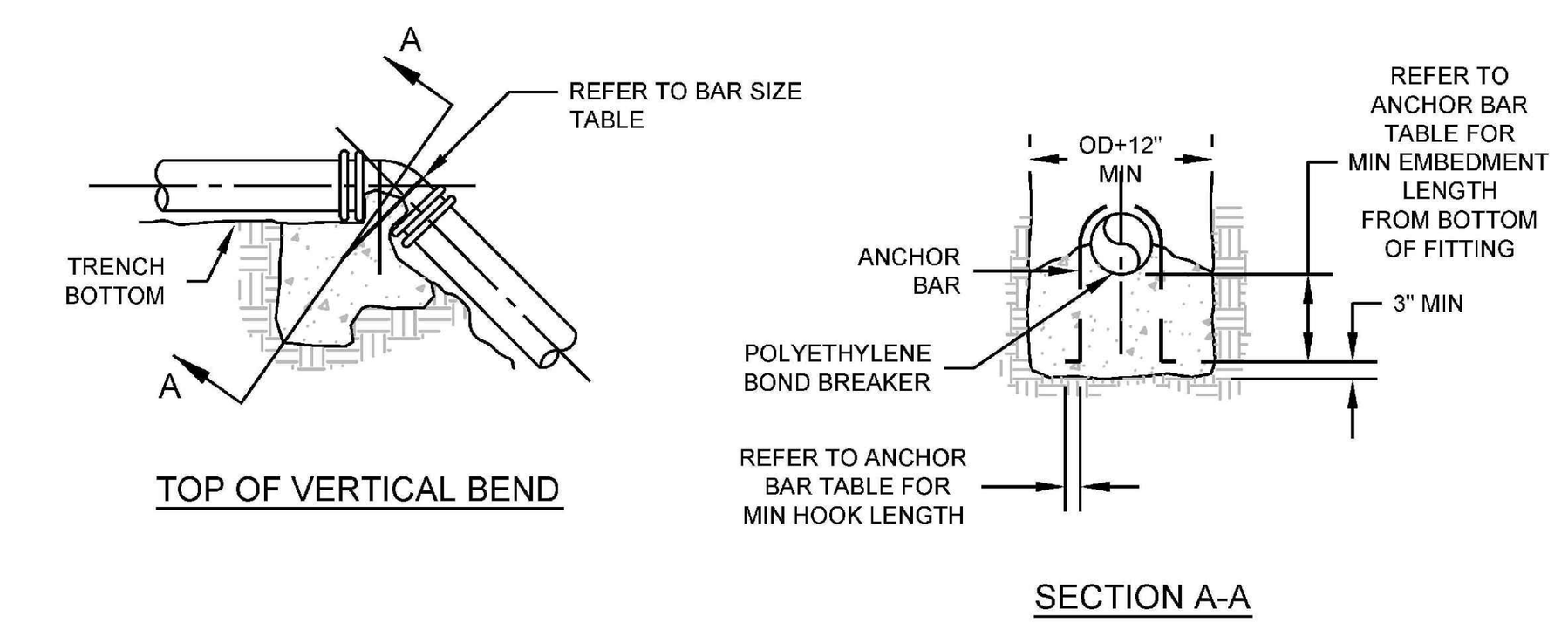


N.T.S.
WA-10

PROJECT: 800100 TASK: 001 DATE: 12-17-2015
PREPARED BY: TELESTO

THRUST BLOCKS
SHEET 1 OF 3

PREPARED FOR:



VOL. CONCRETE FOR 100 PSI TEST PRESSURE (CU FT)

PIPE SIZE	BENDS		
	45°	22 ½°	11 ¼°
6"	18.6	9.5	4.7
8"	32.0	16.3	8.2
12"	68.1	34.7	17.5
16"	118.3	60.3	30.3

FOR TEST PRESSURE GREATER THAN 100 PSI, ADJUST CONCRETE VOLUMES BY MULTIPLYING TABLE VALUES BY CORRECTION FACTOR "F"

$$F = \frac{\text{TEST PRESSURE}}{100}$$

ANCHOR BAR INFORMATION FOR 100 PSI TEST PRESSURE

CONCRETE VOLUME	REBAR SIZE	MIN EMBEDMENT LENGTH	MIN HOOK LENGTH
60 CF	NO. 4	8"	8"
90 CF	NO. 5	12"	10"
133 CF	NO. 6	16"	12"

N.T.S.
WA-10

PROJECT: 800100 TASK: 001 DATE: 12-17-2015
PREPARED BY: TELESTO

THRUST BLOCKS
SHEET 2 OF 3

PREPARED FOR:

THRUST BLOCK BEARING AREAS (SQ-FT) FOR INTERNAL STATIC PRESSURE OF 100 PSI AND SOIL BEARING CAPACITY OF 1000 PSF

DIAM (IN)	90° BEND	45° BEND	22½° BEND	11¼° BEND	DEAD ENDS, VALVES & TEES, PLUGGED CROSS BRANCHES
3	1.7	0.9	0.5	0.2	1.2
4	2.6	1.4	0.7	0.4	1.8
6	5.3	2.9	1.5	0.7	3.7
8	9.1	4.9	2.5	1.3	6.4
12	19.4	10.5	5.3	2.7	13.7
16	33.6	18.2	9.3	4.7	23.8

NOTES:

1. POLYETHYLENE BOND BREAKER SHALL BE INSTALLED BETWEEN ALL FITTINGS AND CONCRETE.
2. ALL THRUST BLOCKING SHALL BE CAST-IN-PLACE CONCRETE WITH A MINIMUM YIELD 28 DAY STRENGTH OF 2000 P.S.I.
3. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED SOIL. FORMS SHALL BE USED AS REQUIRED TO OBTAIN ADEQUATE BEARING AREA AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND WILL NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE.
4. THE CITY MAY REQUIRE LARGER THRUST BLOCKS THAN SPECIFIED IF SOILS ARE DETERMINED TO PROVIDE LESS THAN 1000 PSF BEARING CAPACITY.
5. IN THE ABSENCE OF SOIL BEARING CAPACITY INFORMATION USE 1000 PSF.
6. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED BEARING AREAS BY A CORRECTION FACTOR "F":
$$F = \frac{\text{(ACTUAL SPECIFIED TEST PRESSURE IN PSI)/(100 PSI)}}{\text{(ACTUAL SOIL BEARING CAPACITY IN PSF)/(1000 PSF)}}$$
7. EXAMPLE: CALCULATE THE BEARING AREA FOR 8"-90° BEND WITH A STATIC INTERNAL PRESSURE OF 150 PSI AND SOIL BEARING CAPACITY OF 3000 PSF.

FROM TABLE BEARING AREA = 9.1 SF

$$F = \frac{\text{(150 PSI)/(100 PSI)}}{\text{(3000 PSF)/(1000 PSF)}} = 0.5$$

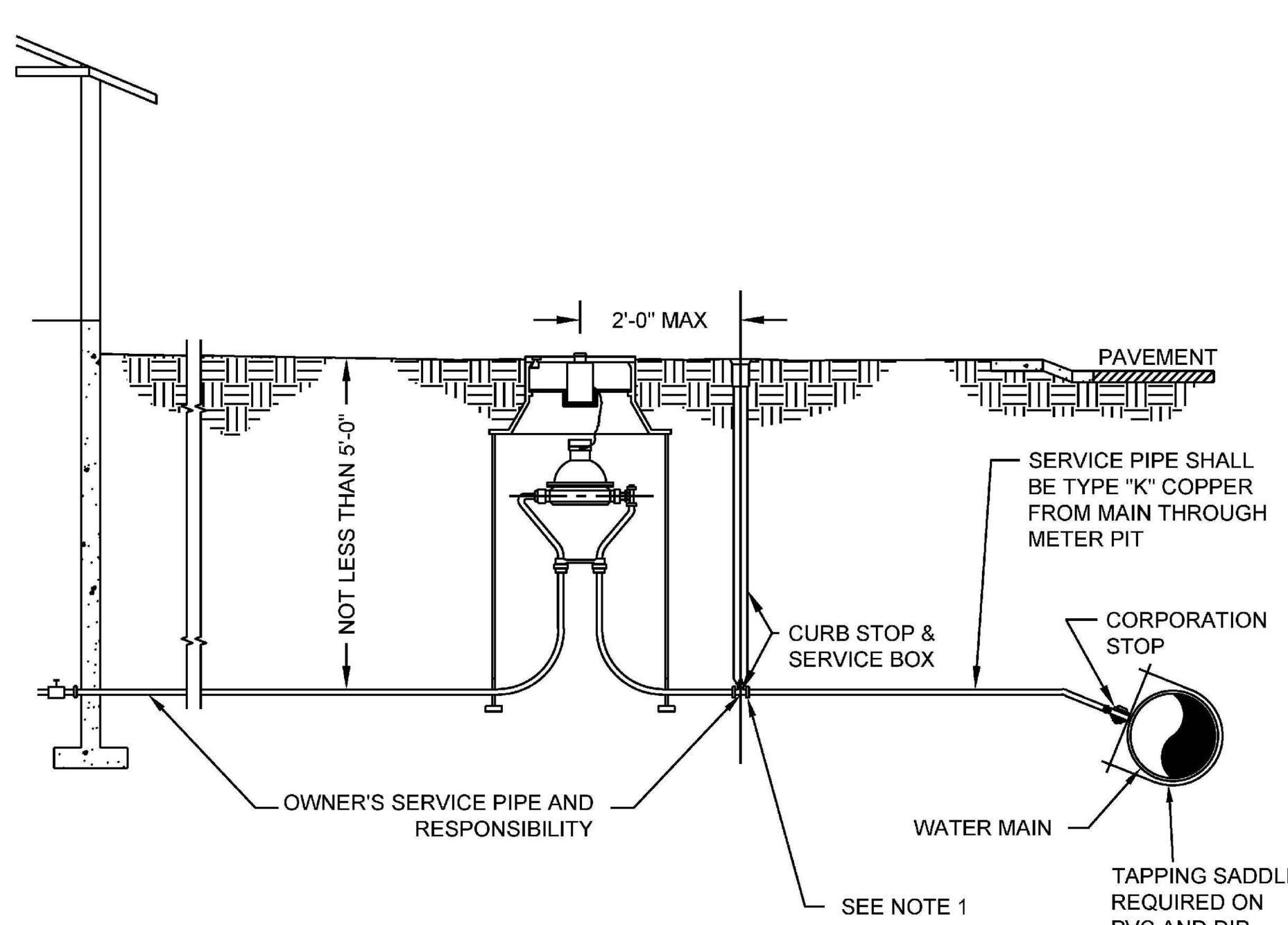
REQUIRED BEARING AREA ON UNDISTURBED SOIL = (0.5)(9.1 SF) =4.55 SF

N.T.S.
WA-10

PROJECT: 800100 TASK: 001 DATE: 12-17-2015
PREPARED BY: TELESTO

THRUST BLOCKS
SHEET 3 OF 3

PREPARED FOR:



NOTES:

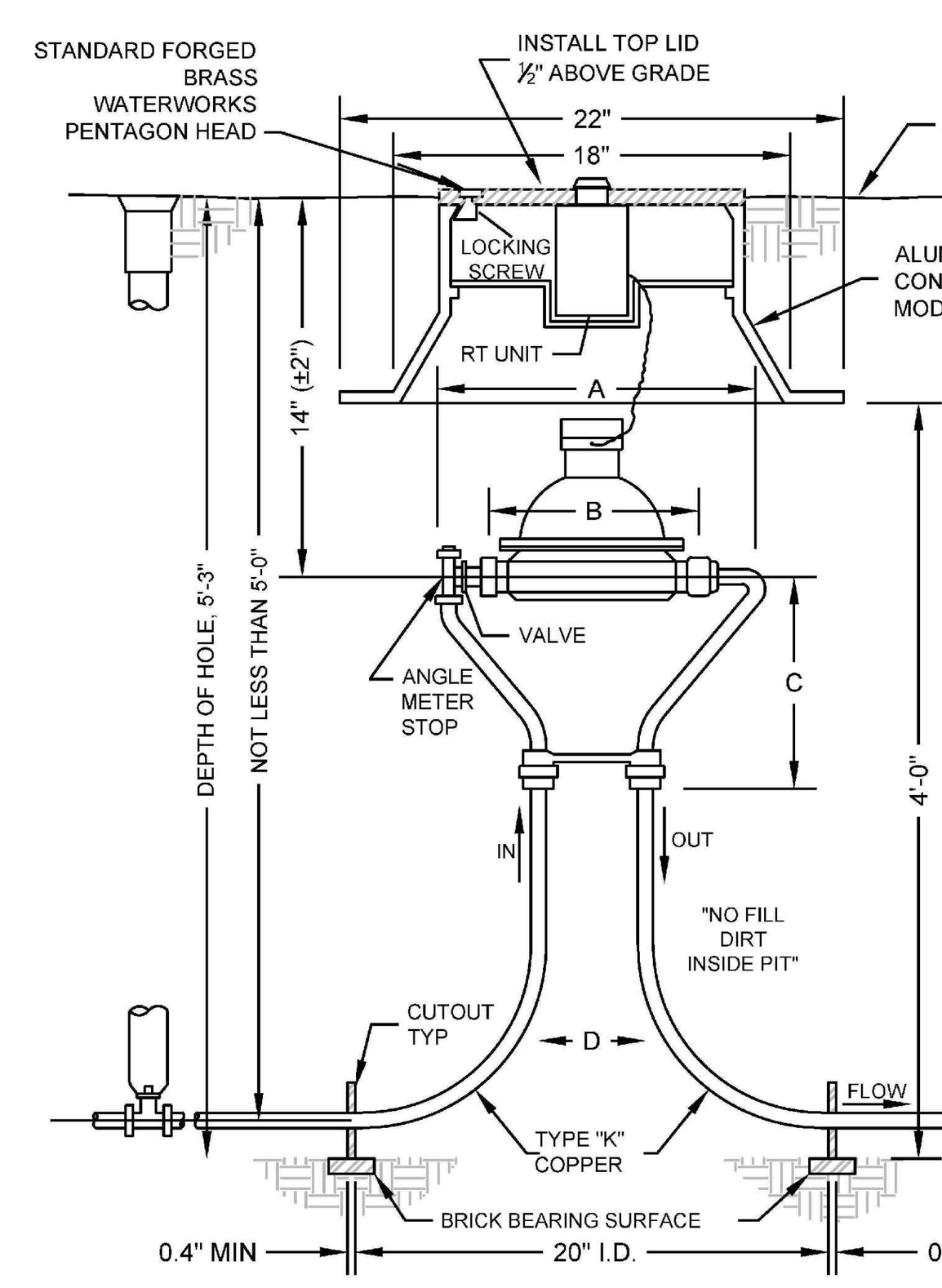
1. PLACEMENT OF CURB STOP BOX MAY VARY FROM A MAXIMUM OF 1 FOOT OUTSIDE THE PROPERTY LINE TO A MAXIMUM OF 1 FOOT INSIDE THE PROPERTY LINE. PLACEMENT OF CURB STOP BOX OUTSIDE THE PROPERTY LINE IS PREFERRED.
2. PUBLIC WORKS DEPARTMENT'S RESPONSIBILITY SHALL BE THE WATER MAIN, CORPORATION STOP, SERVICE PIPING UP TO THE CURB STOP, AND THE TUBE NUT ON THE STREET SIDE OF THE CURB STOP. OWNERS RESPONSIBILITY SHALL BE UP TO AN INCLUDING THE CURB STOP AND BOX.
3. SHOULD ANY SITUATION ARISE OTHER THAN SHOWN CONCERNING THE DEPTH OR OBSTRUCTION OF SERVICE LINE OR THE PLACEMENT OF THE METER PIT OR STOP BOX, CALL TOWN'S PUBLIC WORKS DEPARTMENT.
4. REFER TO WATER AND SEWER STANDARD DRAWINGS AND CONSTRUCTION SPECIFICATIONS FOR METER INSTALLATION REQUIREMENTS.
5. SEE DETAIL WA-11 FOR METER SETTING

N.T.S.
WA-11

PROJECT: 800100 TASK: 001 DATE: 12-17-2015
PREPARED BY: TELESTO

SERVICE LINE, STOP BOX AND METER

PREPARED FOR:



METER INSTALLATION DIMENSIONS				
METER SIZE	A	B	C	D
3/4"	14 1/4"	9 5/16"	8 15/16"	5"
1"	17 1/4"	11 1/16"	11 1/4"	6"

NOTES:

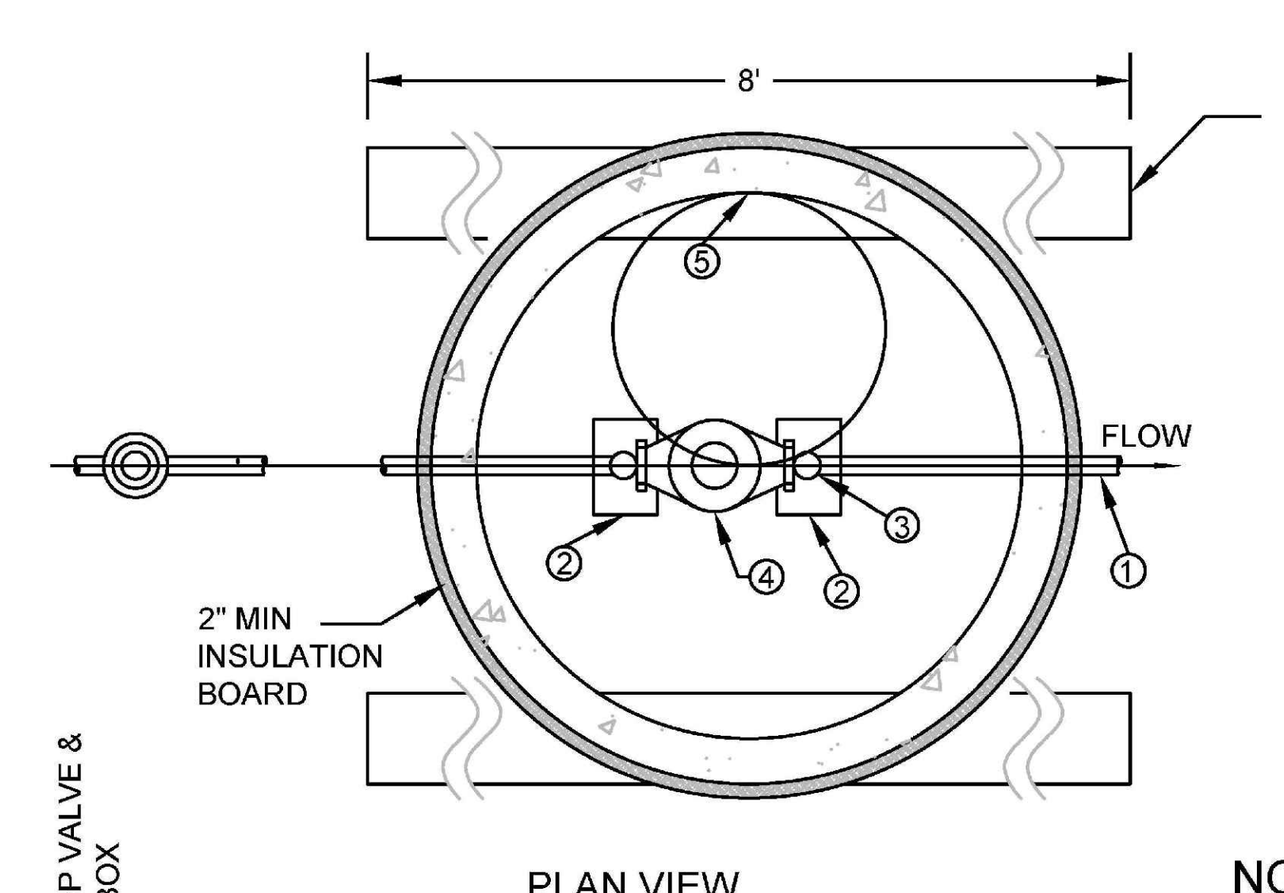
1. NOT FOR INSTALLATION IN ROADWAYS OR PARKING AREAS.
2. IF SURFACE IS NOT TO FINAL GRADE AT TIME OF INSTALLATION OF METER, OR GRADE CHANGES AFTER INSTALLATION, OWNER MUST ADJUST PIT TO MEET SPECIFICATIONS.
3. METER SETTING MUST BE INSPECTED BEFORE BACKFILLING. FOR INSPECTION CALL TOWN DEPARTMENT OF PUBLIC WORKS, LOCATION OF METER SHALL BE 2 FEET DOWNSTREAM OF THE CURB STOP UNLESS OTHERWISE PLACED BY METER SERVICES.
4. NO CONCRETE FLOOR TO BE POURED IN METER PIT.
5. NO SPRINKLER SYSTEM CONNECTIONS SHALL BE MADE IN THE METER PIT. SPRINKLER PIT SHALL BE MINIMUM 5 FT DOWNSTREAM FROM METER PIT, MEASURED EDGE TO EDGE.
6. NO MAJOR LANDSCAPING OR STRUCTURES SHALL BE LOCATED WITHIN 4 FT OF THE METER PIT.
7. IF PRESSURE REDUCING VALVE IS REQUIRED BY PLUMBING CODE, IT SHALL BE INSTALLED INSIDE THE BUILDING, IMMEDIATELY FOLLOWING THE MAIN WATER SHUT OFF VALVE.
8. COPPER SHALL SHOW NO VISIBLE CRIMPING.
9. REFER TO WATER & SEWER CONSTRUCTION SPECIFICATIONS, CURRENT VERSION, FOR PRODUCT SPECIFICATIONS.

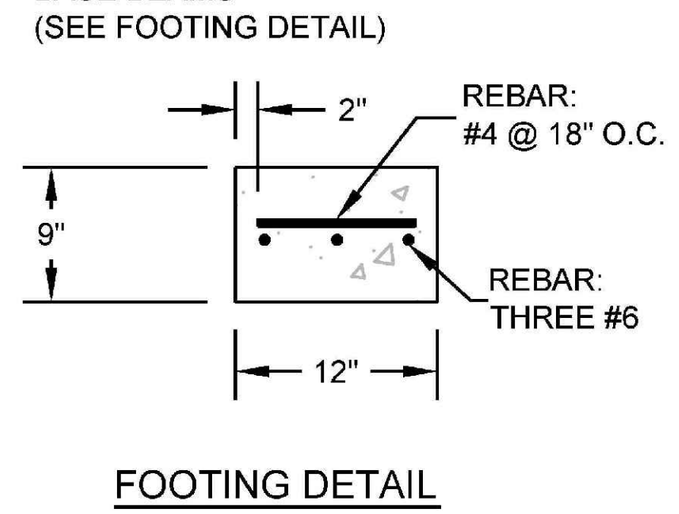
N.T.S.
WA-12

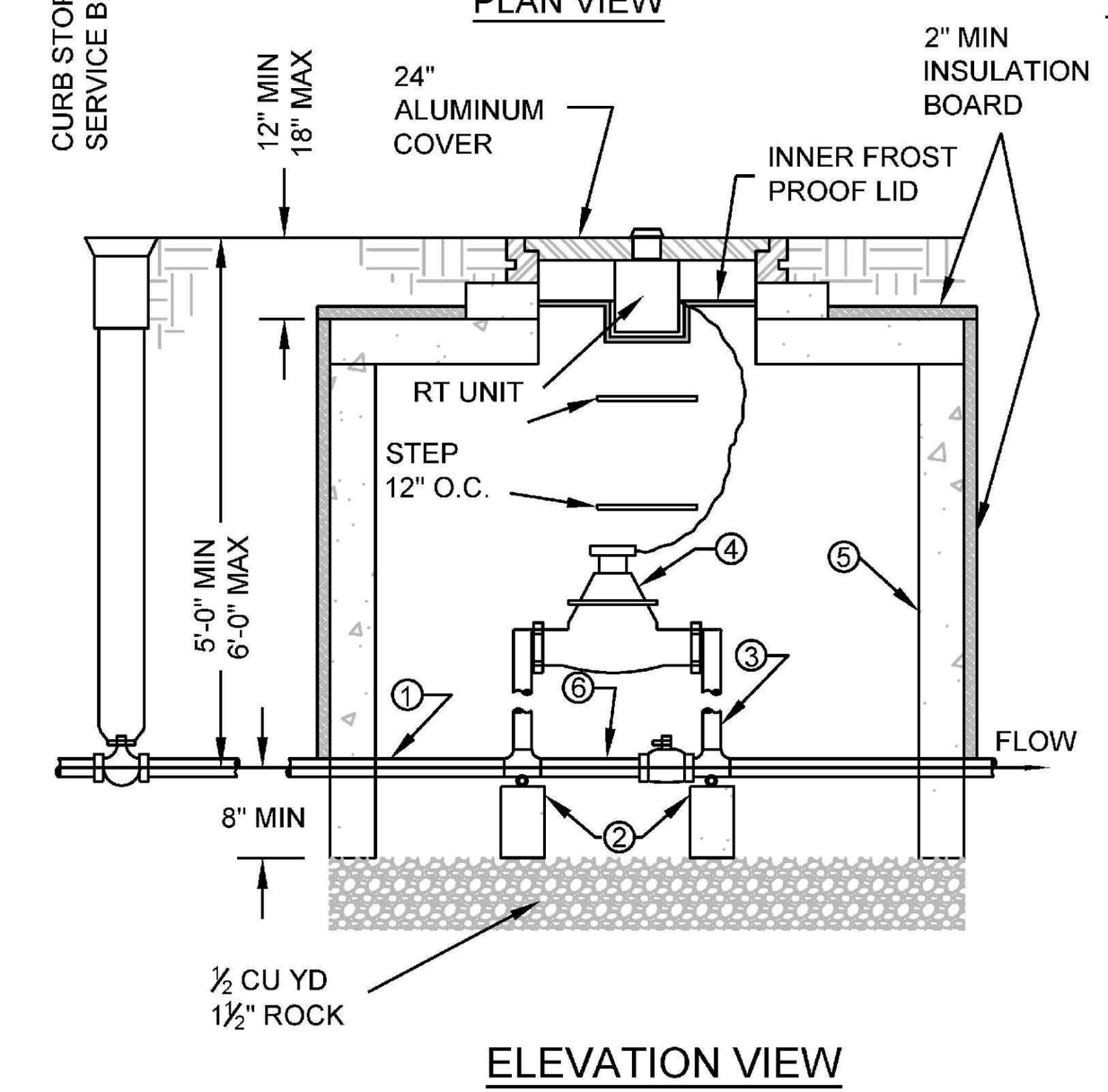
PROJECT: 800100 TASK: 001 DATE: 12-17-2015
PREPARED BY: TELESTO

SETTING FOR ¾" & 1" METER

PREPARED FOR:







NOTES:

1. MANHOLE BASE BEAMS ARE REQUIRED FOR ALL INSTALLATIONS.
2. IF SURFACE IS NOT TO FINAL GRADE AT TIME OF METER INSTALLATION OR GRADE CHANGES AFTER INSTALLATION, OWNER MUST ADJUST VAULT TO MEET SPECIFICATIONS.
3. METER SETTING MUST BE INSPECTED BEFORE BACKFILLING. FOR INSPECTION CALL PUBLIC WORKS DEPARTMENT.
4. ALUMINUM COVER SHALL NOT COME INTO DIRECT CONTACT WITH CONCRETE COLLAR.
5. NO CONCRETE FLOOR TO BE POURED IN METER VAULT.
6. NO SPRINKLER SYSTEM CONNECTIONS SHALL BE MADE IN THE METER VAULT. SPRINKLER PIT SHALL BE 5 FT MINIMUM DOWNSTREAM FROM THE METER, MEASURED EDGE TO EDGE.
7. NO MAJOR LANDSCAPING OR STRUCTURES SHALL BE LOCATED WITHIN 10 FT OF METER VAULT.
8. PRESSURE REDUCING AND BACKFLOW DEVICES SHALL BE INSTALLED INSIDE BUILDING SERVED. INSTALL PER LATEST TOWN ADOPTED PLUMBING CODE.
9. REFER TO WATER AND SEWER CONSTRUCTION SPECIFICATIONS, CURRENT VERSION, FOR PRODUCT SPECIFICATIONS.

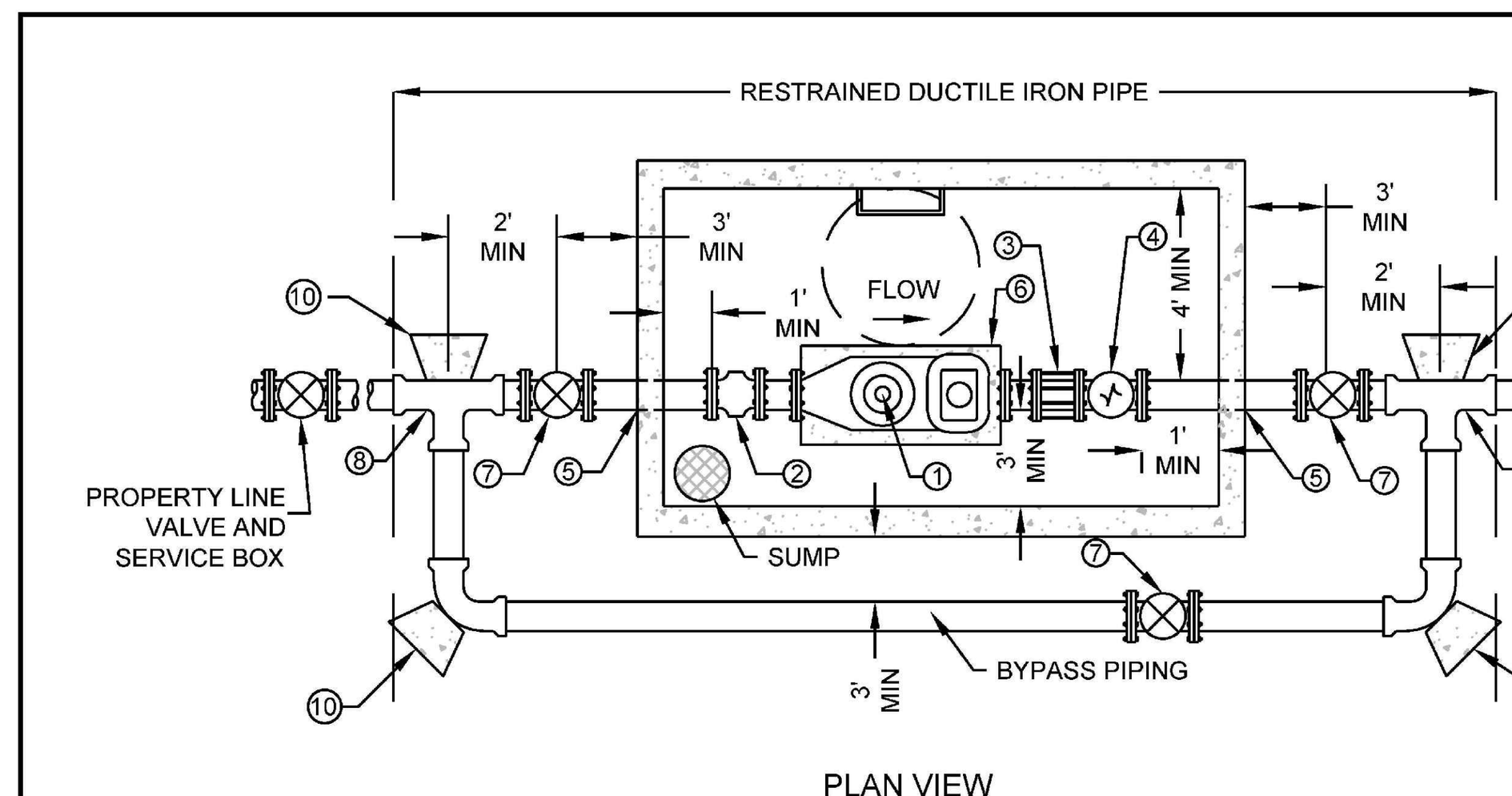
LEGEND	
1	TYPE K COPPER TUBING
2	METER SETTER SUPPORT
3	METER SETTER
4	METER UNIT
5	48" CONCRETE MANHOLE
6	METER SETTER BYPASS

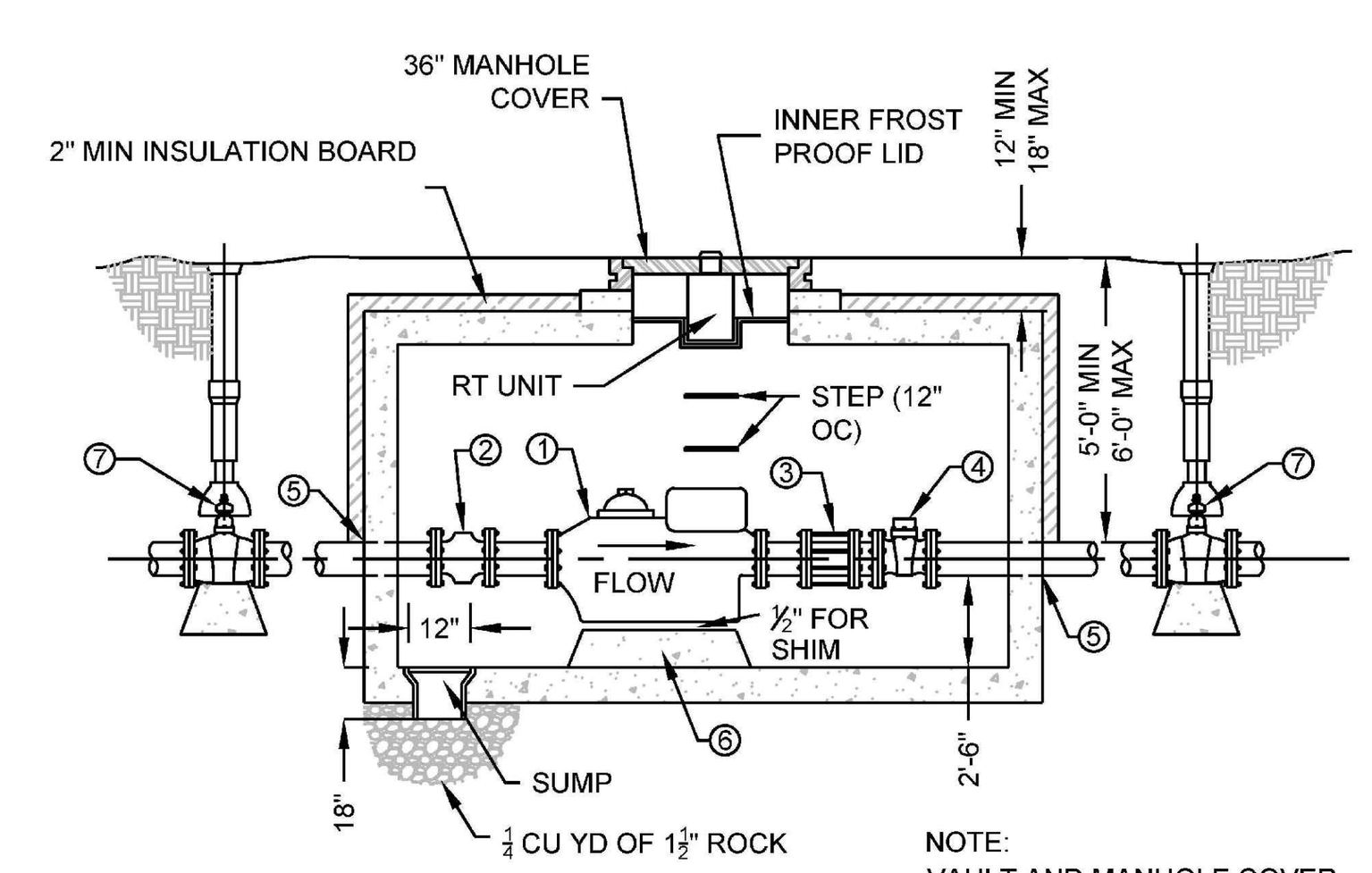
N.T.S.
WA-13

PROJECT: 800100 TASK: 001 DATE: 12-17-2015
PREPARED BY: TELESTO

SETTING FOR 1 ½" & 2" METER

PREPARED FOR:





NOTE:
VAULT AND MANHOLE COVER TO BE RATED FOR HS-20 TRAFFIC LOADINGS.

LEGEND	
1	METER
2	STRAINER
3	MECHANICAL COUPLER
4	CHECK VALVE
5	LINK SEAL
6	CONCRETE SUPPORT
7	GATE VALVE
8	TEE
9	ELBOW
10	THRUST BLOCK

N.T.S.
WA-14

PROJECT: 800100 TASK: 001 DATE: 12-17-2015
PREPARED BY: TELESTO

SETTING FOR 3" OR LARGER

PREPARED FOR:

127 S. DENVER AVENUE
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(720) 685-9951
FAX (720) 294-1330
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(303)961-0031

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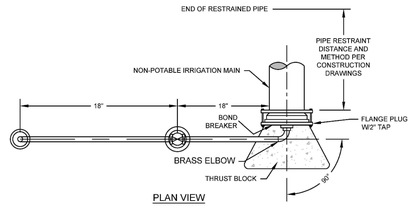
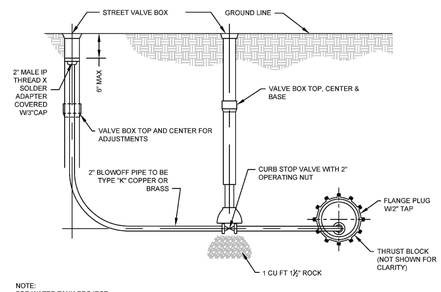


PLAN VIEW



NOTE:
FOR WATER TANK PROJECT
EXTEND BLOWOFF PIPE ABOVE GROUND IN SAME MANNER AS EX. BLOWOFF ASSEMBLY.

ELEVATION VIEW

N.T.S.
WA-15

Date: 12/15/2015 2:55:19 PM W:\wwmeasy\productions\2015-06-08-weekly-construction-details\007-00000_Non-Potable-Blowoff.dwg Plotted By: David Olson

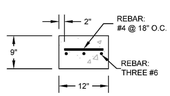
PROJECT:	TASK:	DATE:
800100	001	12-17-2015

PREPARED BY: TELESTO SOLUTIONS INCORPORATED

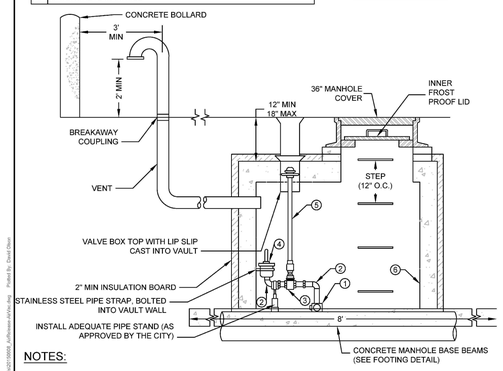
PREPARED FOR:

BLOWOFF ASSEMBLY
FOR 12" AND SMALLER PIPE

LEGEND	
1	CORPORATION STOP OR TAPPING SLEEVE
2	ELBOW
3	THREADED GATE VALVE WITH STANDARD OPENING NUT
4	AIR RELEASE, AIR/VACUUM, OR COMBINATION AIR VALVE
5	VALVE STEM EXTENSION (AS REQUIRED BY THE CITY)
6	5' CONCRETE MANHOLE



FOOTING DETAIL



NOTES:

1. PLACE ½ CU YD OF 1½" ROCK IN THE BOTTOM OF THE MANHOLE TO THE CROWN OF PIPE ONLY.
2. VALVE TYPE AND SIZE SHALL BE SPECIFIED BY THE DESIGN ENGINEER AND APPROVED BY THE TOWN.
3. INSTALL AIR RELEASE, AIR/VACUUM, AND COMBINATION AIR VALVES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
4. ALL SUPPORT MATERIALS SHALL BE GIVEN 2 COATS OF RUST INHIBITIVE PAINT.
5. TOP OF FOOTER TO BE 6" HIGHER THAN TOP OF PIPE.
6. FOR NON-POTABLE INSTALLATIONS ONLY: VENT AND BOLLARD NOT REQUIRED. PAINT MANHOLE COVER WITH GRAY PRIMER AND 2 COATS OF PURPLE RUST INHIBITIVE PAINT.
7. VAULT AND MANHOLE COVER TO BE RATED FOR HS-20 TRAFFIC LOADINGS.

N.T.S.
WA-16

Date: 12/15/2015 2:55:19 PM W:\wwmeasy\productions\2015-06-08-weekly-construction-details\007-00000_Air-Release-Vault.dwg Plotted By: David Olson

PROJECT:	TASK:	DATE:
800100	001	12-17-2015

PREPARED BY: TELESTO SOLUTIONS INCORPORATED

PREPARED FOR:

AIR AND VACUUM RELIEF VALVE AND VAULT

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330
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PROJECT NO. 01-0187.002.00
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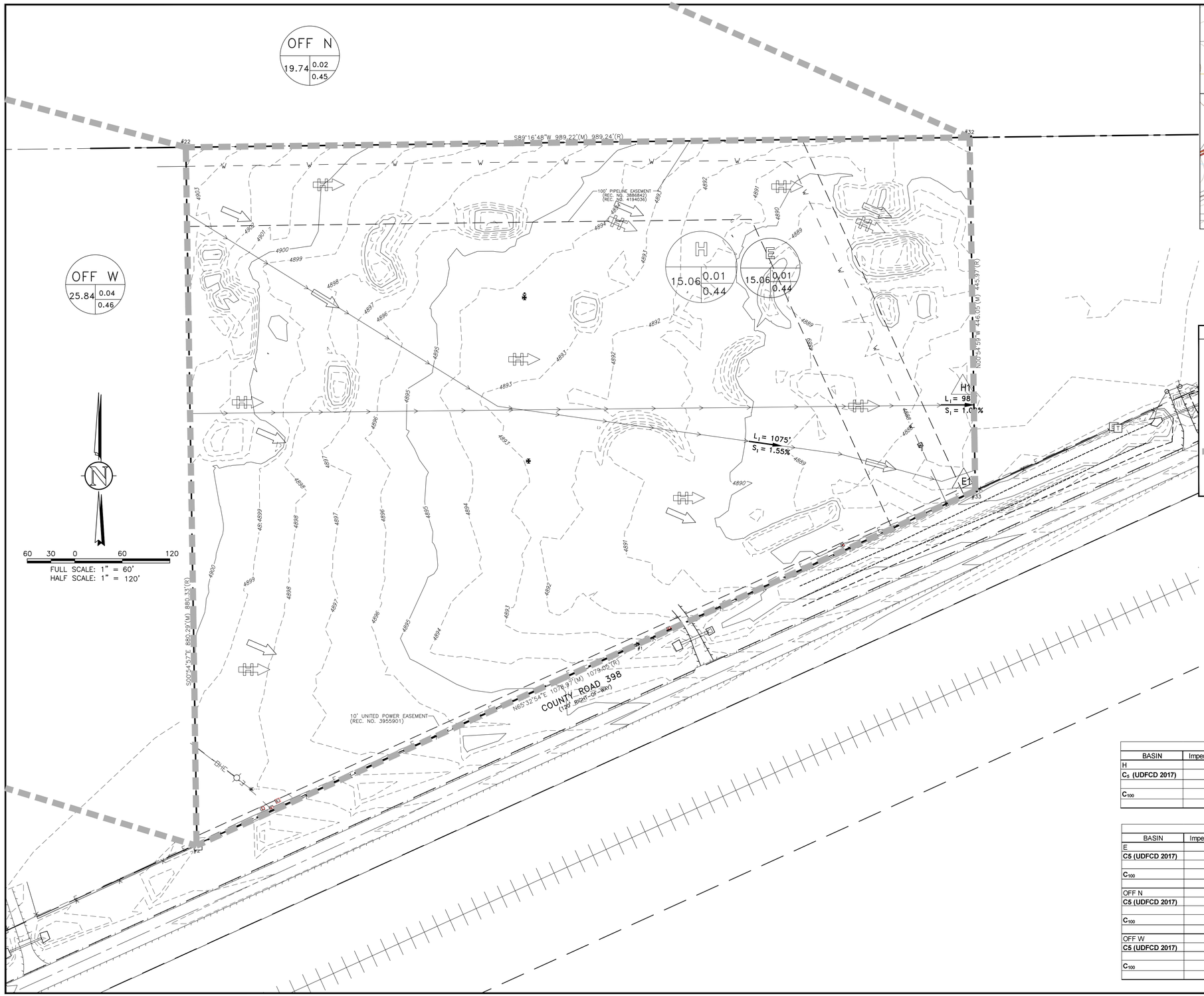

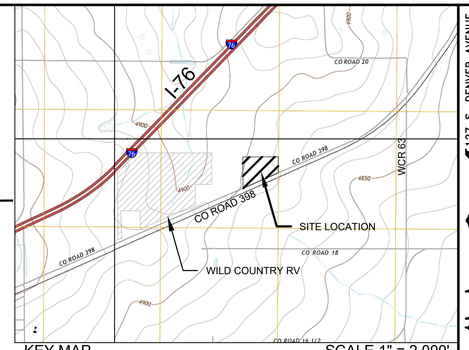

KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

HISTORIC & EXISTING DRAINAGE LEGEND

- E — EXISTING SUB-BASIN DESIGNATION
- H — HISTORIC SUB-BASIN DESIGNATION
- 1.12 / .73 / .83 — C5 / C100 — AREA IN ACRES
- EXISTING BASIN
- EXISTING DRAINAGE PATTERN
- HISTORICAL DRAINAGE PATTERN

L_I - INITIAL LENGTH	L_I = 72.5
S_I - INTIAL SLOPE	S_I = 6.0%
L_t - TRAVEL LENGTH	L_t = 160'
S_t - TRAVEL SLOPE	S_t = 0.75%

*** AVERAGE SLOPE INCLUDES ROOF SLOPE OF 8.33%**

HISTORIC RUNOFF TABLE (RK Annexation)

BASIN	Impervious	C-YR	I	A	CIA(YR-historic)	Flow	DESIGN POINT
H							
C_5 (UDFCD 2017)	2.00	0.01	1.96	15.06	0.29	cfs	HE1
C_{100}	2.00	0.44	4.57	15.06	30.27	cfs	

EXISTING RUNOFF TABLE (RK Annexation)

BASIN	Impervious	C-YR	I	A	CIA(YR-existing)	Flow	DESIGN POINT
E							
C5 (UDFCD 2017)	2.00	0.01	1.96	15.06	0.29	cfs	E1
C_{100}	2.00	0.44	4.57	15.06	30.27	cfs	
OFF N							
C5 (UDFCD 2017)	3.66	0.02	0.83	19.74	0.39	cfs	O1
C_{100}	3.66	0.45	1.94	19.74	17.17	cfs	
OFF W							
C5 (UDFCD 2017)	6.00	0.04	1.05	25.84	1.15	cfs	O2
C_{100}	6.00	0.46	2.44	25.84	28.93	cfs	

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SHEET 15 OF 27

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MAINTENANCE OF ALL PRIVATE STORMWATER TREATMENT AND DRAINAGE IMPROVEMENTS IS A CONTINUING OBLIGATION OF THE LAND OWNER, ITS SUCCESSORS, AND ASSIGNS, TO ENSURE THE FACILITIES FUNCTION AS DESIGNED AND CONTINUE SERVING THE INTENDED FUNCTIONS IN PERPETUITY UNLESS THE CITY EXPRESSLY ACCEPTS THE RESPONSIBILITY IN WRITING. A NON-EXCLUSIVE ACCESS AND DRAINAGE EASEMENTS ARE HEREBY GRANTED TO CITY OF BRIGHTON FOR THE PURPOSE OF ACCESSING, INSPECTING, MAINTAINING, AND REPAIRING PRIVATE DRAINAGE FACILITIES IN THE EVENT THE LAND OWNER, ITS SUCCESSORS, AND ASSIGNS FAILS TO SATISFACTORILY MAINTAIN OR REPAIR SAID FACILITIES

L_I - INITIAL LENGTH — L_I = 72.5
S_I - INTIAL SLOPE — S_I = 6.0%
L_t - TRAVEL LENGTH — L_t = 160'
S_t - TRAVEL SLOPE — S_t = 0.75%
* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 8.33%

DEVELOPED DRAINAGE LEGEND

B1 | 3.20 | 58 / 88 — SUB-BASIN DESIGNATION; C5; C100; AREA IN ACRES
EXISTING DRAINAGE PATTERN
DEVELOPED BASIN
PROPOSED DRAINAGE PATTERN
INTERNAL EMERGENCY OVERFLOW
OFFSITE EMERGENCY OVERFLOW

60 30 0 60 120
FULL SCALE: 1" = 60'
HALF SCALE: 1" = 120'

OFF N | 19.74 | 0.02 / 0.45
OFF W | 25.84 | 0.04 / 0.46

PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W
N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

S89°16'48"W 989.19'(M) 989.24'(R)

S00°54'57"E 880.33'(R)

LOT 1 | 1.96 | 0.36 / 0.63
LOT 2 | 2.32 | 0.35 / 0.63
LOT 3 | 1.65 | 0.26 / 0.57
LOT 4 | 2.00 | 0.34 / 0.62
LOT 5 | 1.95 | 0.36 / 0.63
LOT 6 | 2.32 | 0.35 / 0.63
LOT 7 | 2.18 | 0.26 / 0.57
ROWRK | 0.73 | 0.34 / 0.62

FB 1 — L_I= 99.1' S_I = 0.42%
FB 2/3 N — L_I= 404.2' S_I = 0.56%
FB 2/3 S — L_I= 129.7' S_I = 0.34%
FB 4 — L_I= 183.8' S_I = 2.42%
FB 5/6/7 N — L_I= 347.9' S_I = 1.39%
FB 5/6/7 S — L_I= 364.9' S_I = 2.19%
FH RK #1 — L_I= 435.5' S_I = 0.52%
FH RK #2 — L_I= 523.4' S_I = 0.18%
FH RK #3 — L_I= 104.0' S_I = 9.12%

50' X 70' SEPTIC FIELD
70' X 50' SEPTIC FIELD
CONCEPT BLDG 6,300 SF
CONCEPT BLDG 23,400 SF
100' PIPELINE EASEMENT (REC. NO. 3886642) (REC. NO. 4194935)
10' UNITED POWER EASEMENT (REC. NO. 3955901)
COUNTY ROAD NO. 398
FWS ANNEXATION NO. 3 (REC. NO. 4268974)
RAILROAD

KEY MAP — SCALE 1" = 2,000'
SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

I-76, CO ROAD 20, CO ROAD 398, CO ROAD 18, WCR 63, N, W, SITE LOCATION, WILD COUNTRY RV

INFILTRATION PONDS - 100yr STORM

POND	REQUIRED VOLUME	DESIGN VOLUME	INFILTRATION RATE*
1	34,010	34,811	80.1 HRS
2-3	61,481	66,313	79.6 HRS
4	36,320	36,543	73.4 HRS
5-7	194,887	200,402	99.7 HRS

* USING PERCOLATION RATE FROM ROBERTSON RV PARK DATED JANUARY 14, 2014 PER CRS 37-92-602(8) - 100yr STORM IS REQUIRED TO DRAIN WITHIN 120 HOURS.

INFILTRATION PONDS - 5yr STORM

POND	REQUIRED VOLUME	DESIGN VOLUME	INFILTRATION RATE*
1	5,041	34,811	31.5 HRS
2-3	8,186	66,313	25.1 HRS
4	7,583	36,543	34.8 HRS
5-7	18,382	200,402	22.7 HRS

* USING PERCOLATION RATE FROM ROBERTSON RV PARK DATED JANUARY 14, 2014 PER CRS 37-92-602(8) - 5yr STORM IS REQUIRED TO DRAIN WITHIN 72 HOURS.

DEVELOPED (RK Annexation)

BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)		DESIGN POINT
LOT 1							
C_5 (UDFCD 2017)	43.65	0.36	2.03	1.83	1.34	cfs	1
C_{100}	43.65	0.63	4.74	1.83	5.45	cfs	1
LOT 2							
C_5	43.03	0.35	3.87	1.66	2.27	cfs	2
C_{100}	43.03	0.63	9.02	1.66	9.39	cfs	2
LOT 3							
C_5	31.37	0.26	1.89	1.65	0.80	cfs	3
						cfs	
C_{100}	31.37	0.57	4.40	1.65	4.16	cfs	3
						cfs	
LOT 4							
C_5	41.34	0.34	2.21	2.00	1.50	cfs	4
						cfs	
C_{100}	41.34	0.62	5.16	2.00	6.38	cfs	4
						cfs	
LOT 5							
C_5	43.65	0.36	2.15	2.52	1.95	cfs	5
						cfs	
C_{100}	43.65	0.63	5.02	2.52	7.96	cfs	5
						cfs	
LOT 6							
C_5	43.03	0.35	2.16	2.32	1.77	cfs	6
C_{100}	43.03	0.63	5.05	2.32	7.31	cfs	6
LOT 7							
C_5	31.37	0.26	1.92	2.32	1.14	cfs	7
C_{100}	31.37	0.57	4.48	2.32	5.96	cfs	7
ROW RK							
C_5	41.34	0.34	2.21	0.75	0.57	cfs	8
C_{100}	41.34	0.62	5.15	0.75	2.40	cfs	8

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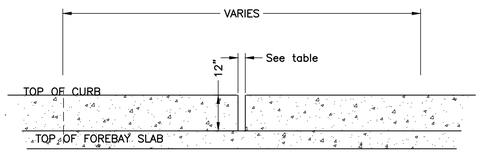
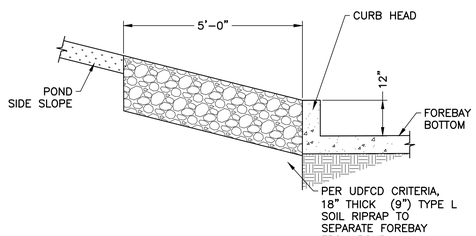
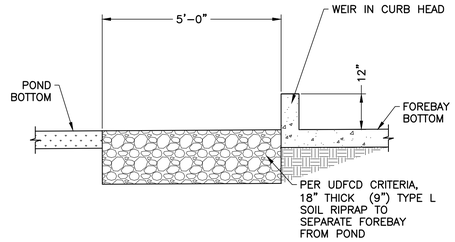


SEE TABLE FOR RELEASE FROM FOREBAY PER UDFCD EQN. SO-13 SEE DRAINAGE REPORT APPENDIX FOR CALCULATIONS

TYPICAL FOREBAY WEIR
SCALE 1" = 2'



TYPICAL FOREBAY BANK PROTECTION CROSS SECTION
SCALE 1" = 2'



TYPICAL FOREBAY APRON CROSS SECTION
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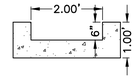
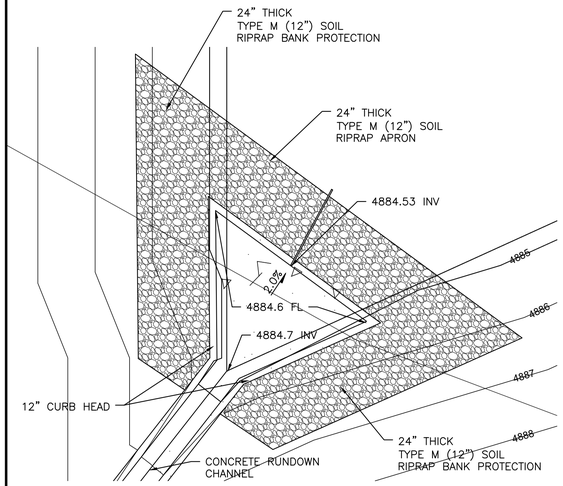
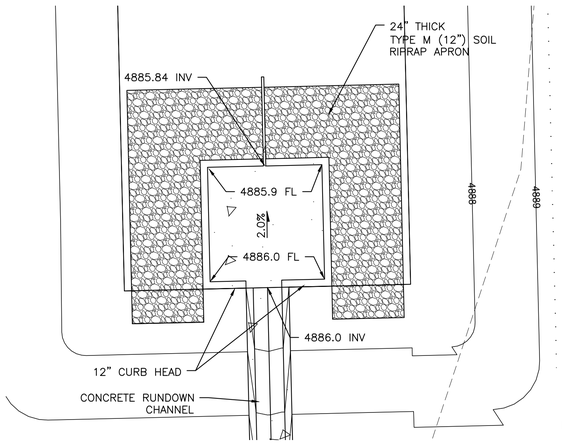


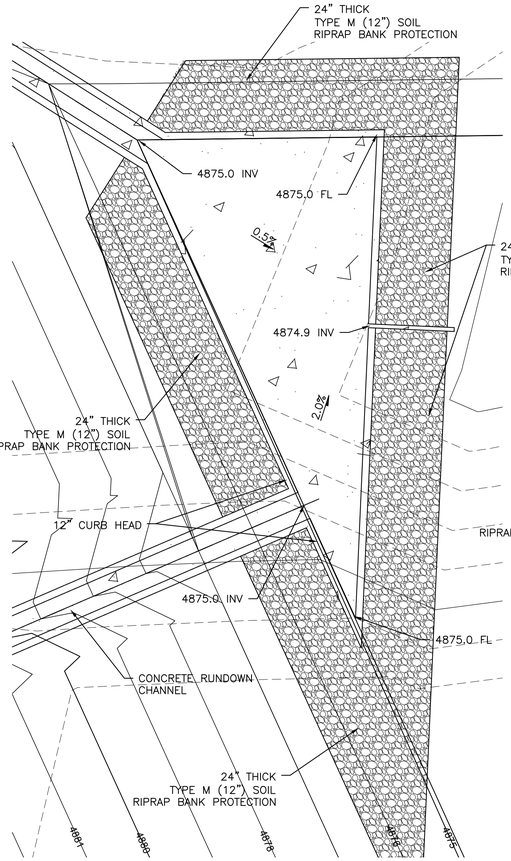
CONC RUNDOWN SECTION
SCALE 1" = 2'



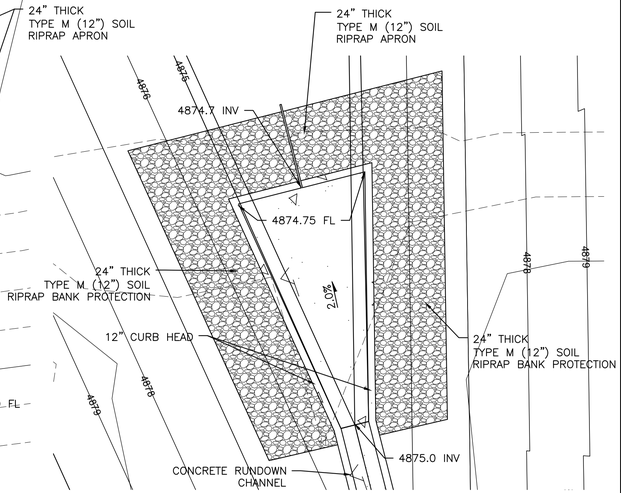
FOREBAY 1 DETAIL
SCALE 1" = 5'



FOREBAY 2/3 S DETAIL
SCALE 1" = 5'

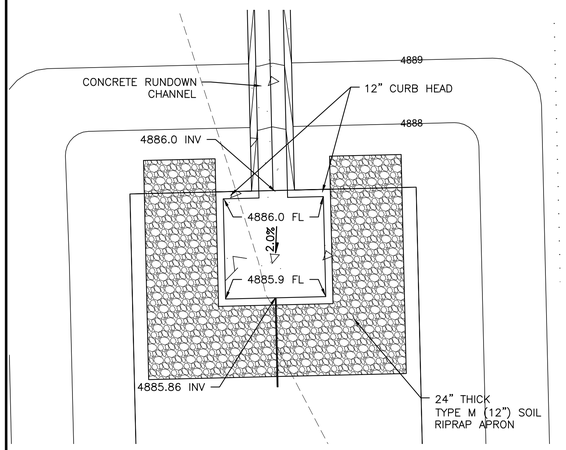


FOREBAY 5/6/7 N DETAIL
SCALE 1" = 5'

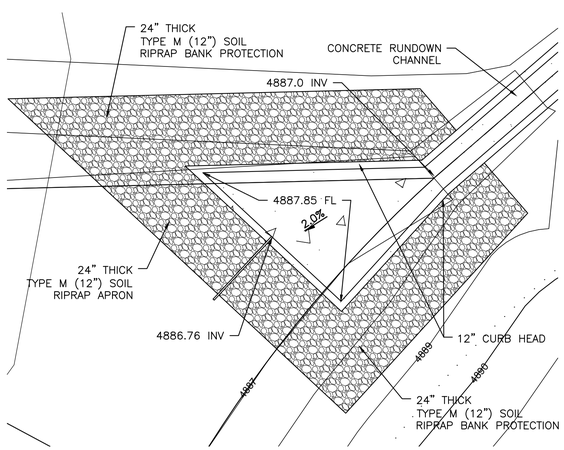


FOREBAY 5/6/7 S DETAIL
SCALE 1" = 5'

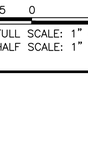
FOREBAY DATA TABLE				
FOREBAY	FOREBAY AREA (SF)	BASINS TREATED	2% RELEASE Q (CFS)	WEIR WIDTH (IN)
1	64	LOT 1	0.11	1.1
2/3 S	64	LOT 2	0.19	2
2/3 N	49	LOT 3	0.08	0.8
4	81	LOT 4	0.13	1.4
5/6/7 N	169	LOTS 5 & 6	0.31	3.3
5/6/7 S	81	LOT 7	0.12	1.3



FOREBAY 2/3 N DETAIL
SCALE 1" = 5'



FOREBAY 4 DETAIL
SCALE 1" = 5'



5 2.5 0 5 10
FULL SCALE: 1" = 5'
HALF SCALE: 1" = 10'

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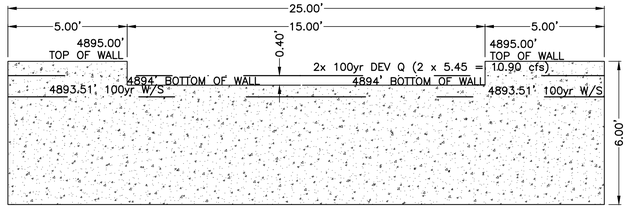
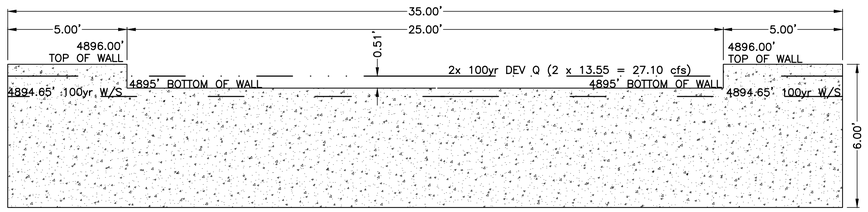


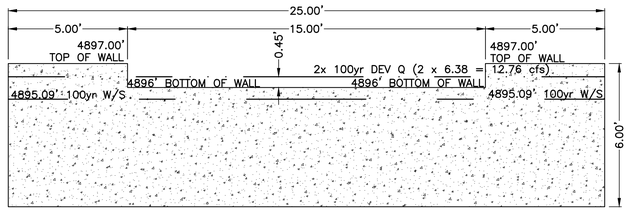
POND '1' EMERGENCY SPILLWAY WALL

SCALE 1" = 3'



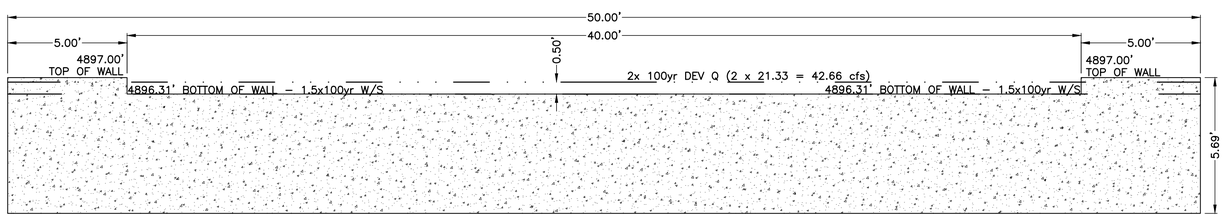
POND '2/3' EMERGENCY SPILLWAY WALL

SCALE 1" = 3'



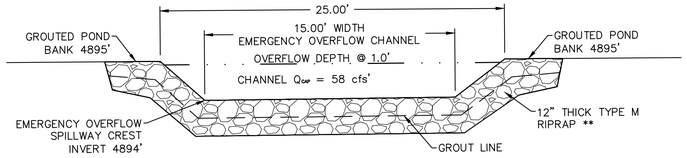
POND '4' EMERGENCY SPILLWAY WALL

SCALE 1" = 3'



POND '5/6/7' EMERGENCY SPILLWAY WALL

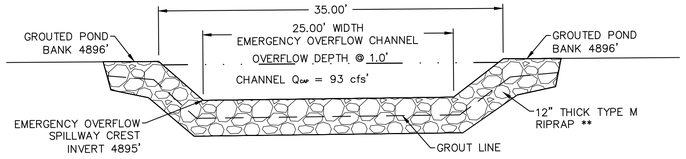
SCALE 1" = 3'



** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL @ SPILLWAY WALL DETAIL - POND 1

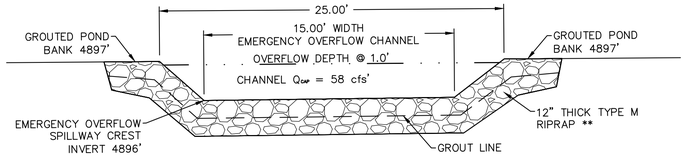
SCALE 1" = 2.0'



** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL @ SPILLWAY WALL DETAIL - POND 2/3

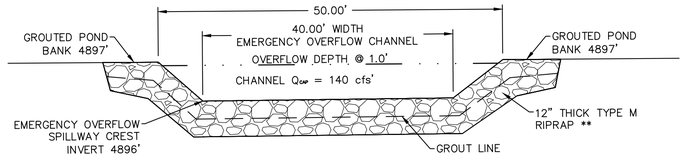
SCALE 1" = 2.0'



** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

EMERGENCY OVERFLOW CHANNEL @ SPILLWAY WALL DETAIL - POND 4

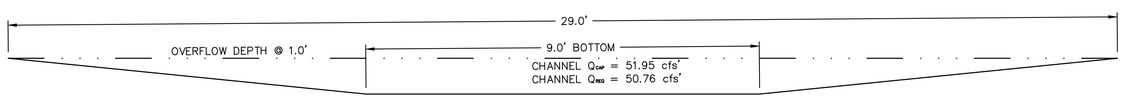
SCALE 1" = 2.0'



** GROUTED RIPRAP SHALL NOT HAVE GROUT LEVEL ABOVE 1/2 THE TOTAL RIPRAP DEPTH (i.e. 12" OF TYPE M RIPRIP TO HAVE GROUT UP TO 6").

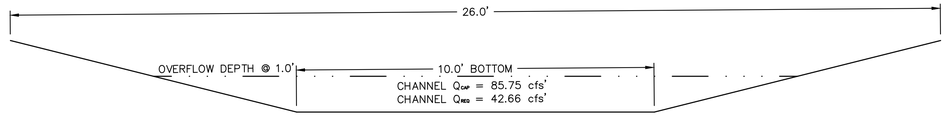
EMERGENCY OVERFLOW CHANNEL @ SPILLWAY WALL DETAIL - POND 5/6/7

SCALE 1" = 2.0'



SPILLWAY CHANNEL DETAIL - PONDS 1, 2/3, 4

SCALE 1" = 2.0'



SPILLWAY CHANNEL DETAIL - POND 5/6/7

SCALE 1" = 2.0'

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(720) 685-9951
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Western Engineering Consultants, inc LLC

No.	REVISION	DATE	BY
1	RESUBMITTAL PER TOWN 05/02/19 COMMENTS	05/19/20	CFC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E. 60th AVENUE
BENNETT, CO 80102
(303)961-0031

POND SPILLWAY DETAILS
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DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 017D-POND DTL
SHEET 17D OF 27

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INITIAL

PARCEL NO. 130319000003
GARY DOUGLAS MYERS (1/2 INT)
ARTHUR W. BERGLUND
ROBERT KENT BERGLUND REVOCABLE TRUST
ARNITA M. TUDOR
JANET B. WARDA
Acres (Calculated) 302.0659
Legal 7233 THAT PT N2/SE4 19 2 63 LYING N & W OF RR R/W

N89°53'18"E 2756.96' (BASIS OF BEARINGS)

NW COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

NE COR. SW 1/4, SEC. 19, T 2 N, R 63 W, FOUND 3/4" REBAR WITH 3 1/4" ALUMINUM CAP, PLS 23027.

RK ANNEX
15.060 ac.
656,013.23

#22

#32

412.66'
S 89°16'48" W
30' REAR SETBACK

S89°16'48"W 989.22'(M) 989.24'(R)

576.56'
S 89°16'48" W
30' REAR SETBACK

S 01°24'55" E
183.29'

100' PIPELINE EASEMENT
(REC. NO. 3866842)
(REC. NO. 4194036)

N 01°24'46" W
491.1'

N 89°23'50" E
246.43'

10' SIDE SETBACK
10' SIDE SETBACK

S 61°48'55" E
1586.67'

S 00°36'10" E
5.04'

N 66°38'20" E
29.49'

N 89°23'50" E
272.97'

10' SIDE SETBACK
10' SIDE SETBACK

30' REAR SETBACK

N 00°54'57" W
1651.12'

N 00°54'57" W
1441.46'

N 00°54'57" W
880.33'(M)

S 00°54'57" E
1320'

S 00°54'57" E
1320.29'(M)

N 00°54'57" W
290.66'

N 00°54'57" W
213.91'

S 00°54'57" E
1320'

S 00°54'57" E
1320.29'(M)

INTERIM

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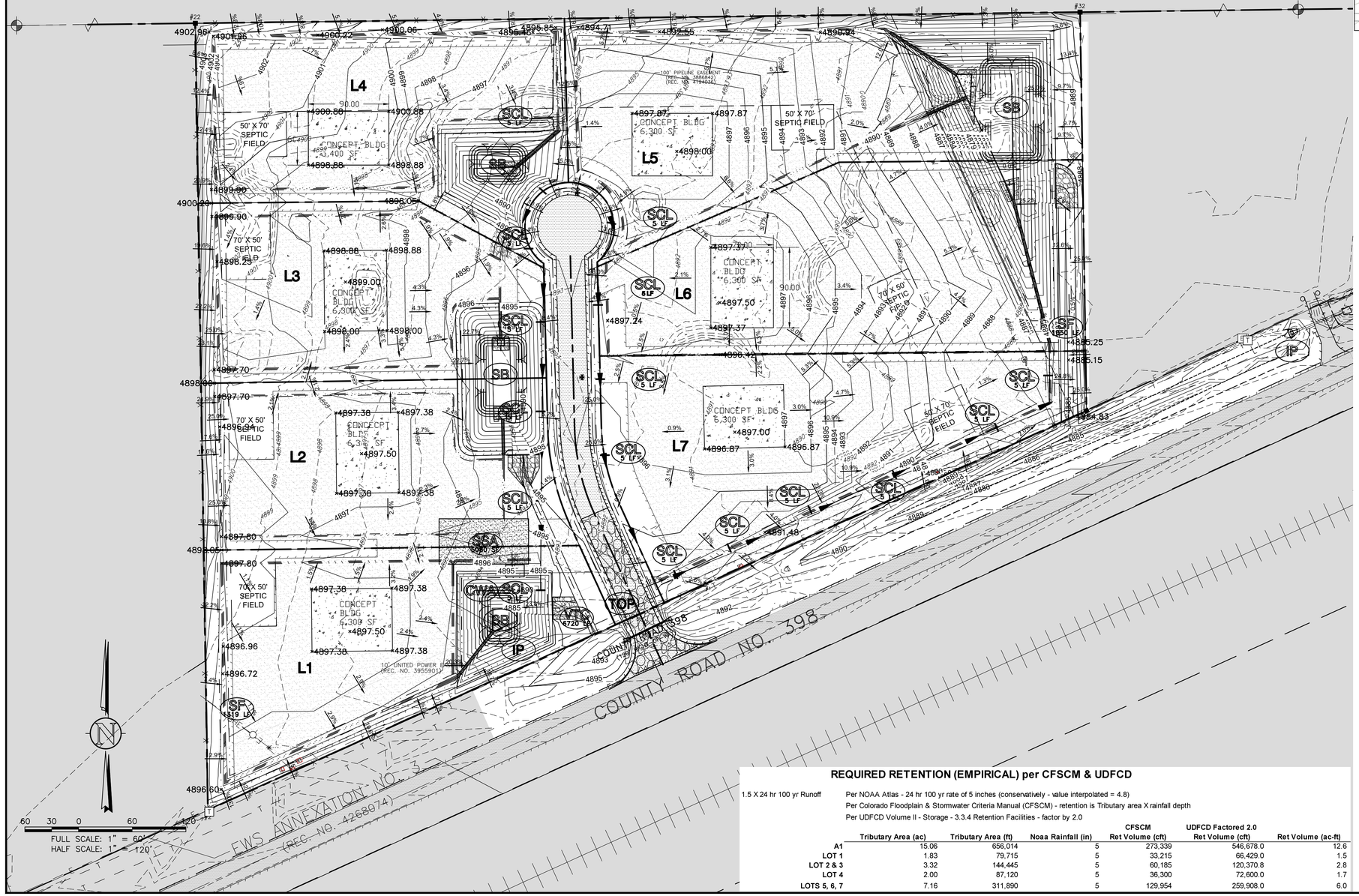

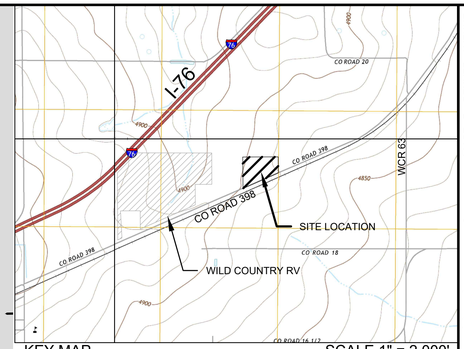

KEY MAP SCALE 1" = 2,000'
SE 1/4, S24, T2N, R64W, 6th P.M.
SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

INFILTRATION PONDS		
POND	REQUIRED VOLUME	DESIGN VOLUME
1	34,010	34,811
2-3	61,481	66,313
4	37,478	36,543
5-7	194,887	200,402

REQUIRED RETENTION (EMPIRICAL) per CFSCM & UDFCD

1.5 X 24 hr 100 yr Runoff

Per NOAA Atlas - 24 hr 100 yr rate of 5 inches (conservatively - value interpolated = 4.8)
Per Colorado Floodplain & Stormwater Criteria Manual (CFSCM) - retention is Tributary area X rainfall depth
Per UDFCD Volume II - Storage - 3.3.4 Retention Facilities - factor by 2.0

	Tributary Area (ac)	Tributary Area (ft)	Noaa Rainfall (in)	CFSCM Ret Volume (cft)	UDFCD Factored 2.0 Ret Volume (cft)	Ret Volume (ac-ft)
A1	15.06	656,014	5	273,339	546,678.0	12.6
LOT 1	1.83	79,715	5	33,215	66,429.0	1.5
LOT 2 & 3	3.32	144,445	5	60,185	120,370.8	2.8
LOT 4	2.00	87,120	5	36,300	72,600.0	1.7
LOTS 5, 6, 7	7.16	311,890	5	129,954	259,908.0	6.0

LINETYPE LEGEND

- LOT / PROPERTY LINE
- EASEMENT
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EDGE of ASPHALT/GRAVEL
- EXISTING FENCE

BMP LEGEND

CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
CM	CONSTRUCTION MARKER
CIP	CULVERT INLET PROTECTION
DC	WIND EROSION & DUST CONTROL
DS	DRAINAGE SWALE
GH	GOOD HOUSEKEEPING PRACTICE
IP	INLET PROTECTION
PS	PERMANENT SEEDING
RS	ROCK SOCK
RRC	REINFORCED ROCK BERM FOR CULVERT PROTECTION
SCL	SEDIMENT CONTROL LOG
SF	SILT FENCE
SS	STREET SWEEPING VACUUMING
SSA	STABILIZED STAGING AREA
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VB	VEGETATED BUFFER
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	AREA OUTSIDE OF CONSTRUCTION LIMITS

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FINAL

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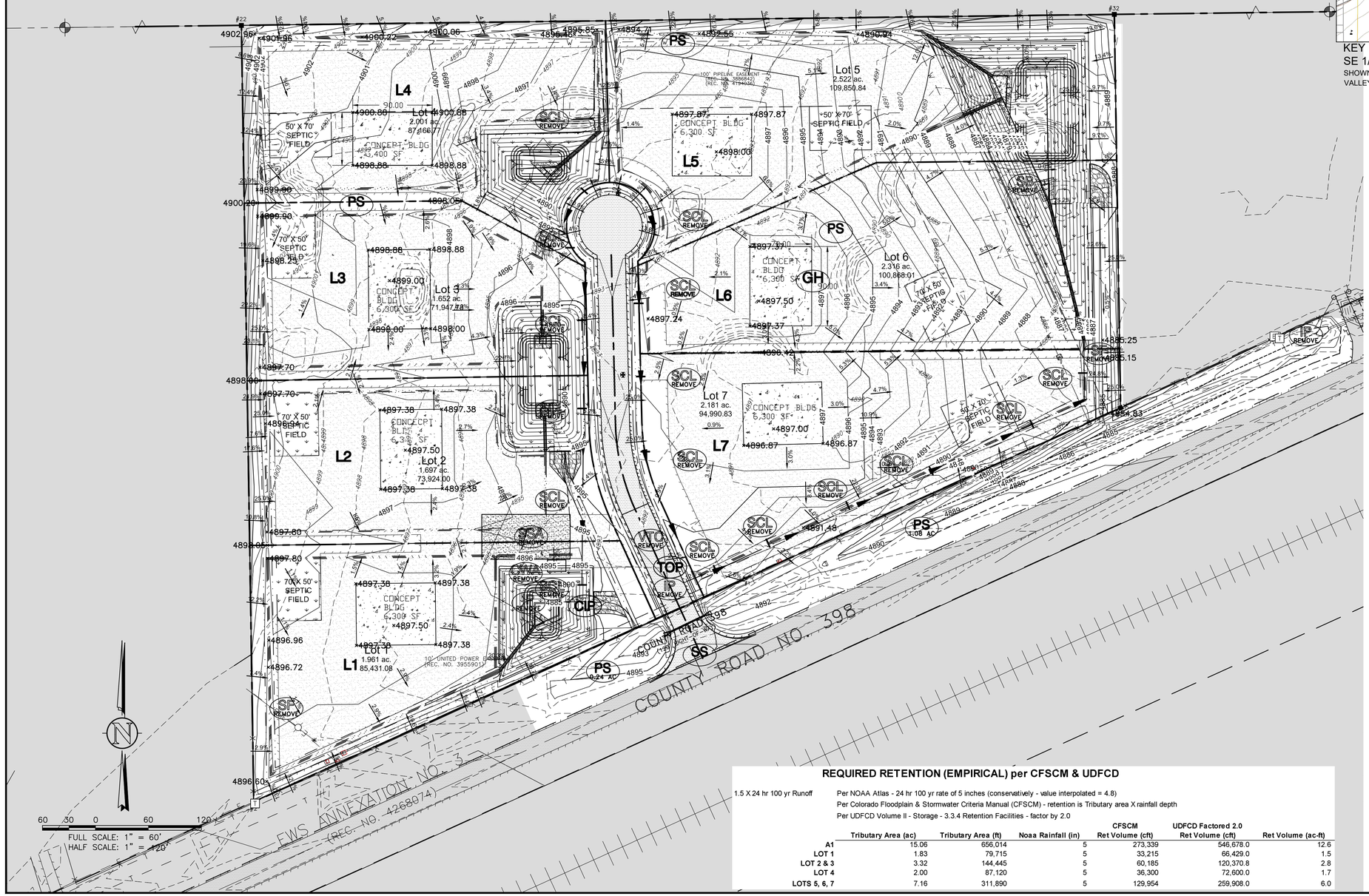

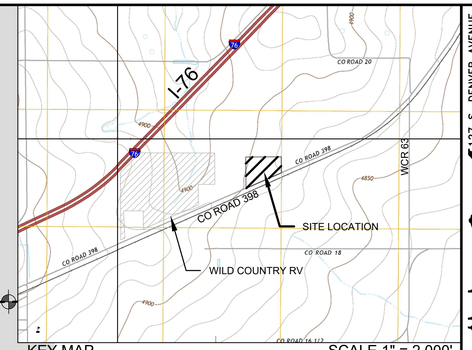

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BMP LEGEND

- CWA — CONCRETE WASHOUT AREA
- CF — CONSTRUCTION FENCE
- CM — CONSTRUCTION MARKER
- CIP — CULVERT INLET PROTECTION
- DC — WIND EROSION & DUST CONTROL
- DS — DRAINAGE SWALE
- GH — GOOD HOUSEKEEPING PRACTICE
- IP — INLET PROTECTION
- PS — PERMANENT SEEDING
- RS — ROCK SOCK
- RRC — REINFORCED ROCK BERM FOR CULVERT PROTECTION
- SCL — SEDIMENT CONTROL LOG
- SF — SILT FENCE
- SS — STREET SWEEPING VACUUMING
- SSA — STABILIZED STAGING AREA
- TOP — TEMPORARY OUTLET PROTECTION
- VB — VEGETATED BUFFER
- VTC — VEHICLE TRACKING CONTROL
- AREA OUTSIDE OF CONSTRUCTION LIMITS

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DOC CON # 0020-GESCFIN
SHEET 20 OF 27

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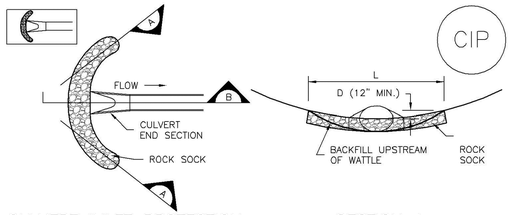
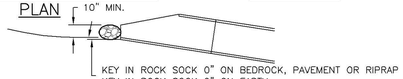


CULVERT INLET PROTECTION PLAN

SECTION A



KEY IN ROCK SOCK 0" ON BEDROCK, PAVEMENT OR RIPRAP
KEY IN ROCK SOCK 2" ON EARTH

SECTION B

CIP–1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF CULVERT INLET PROTECTION.

2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

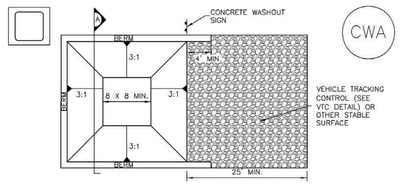
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ THE HEIGHT OF THE ROCK SOCK.

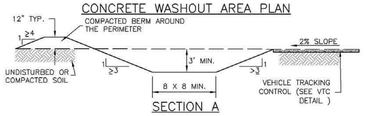
5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



CONCRETE WASHOUT AREA PLAN



SECTION A

CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

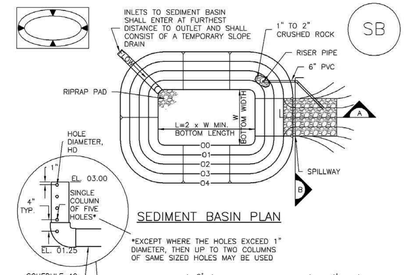
5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

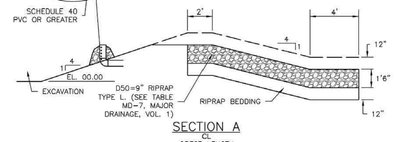
7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).

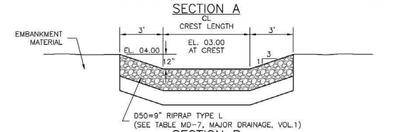
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



SEDIMENT BASIN PLAN



SECTION A



SECTION B

SB–1. SEDIMENT BASIN

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FT. LUPTON, CO 80621
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email@westernec.com
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(303)961-0032

SEE SHEET 17 FOR RETENTION VOLUMES

TABLE SB–1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Upstream Drainage Area (rounded to nearest acre), (Ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 ½	2	9/32
2	21	3	13/16
3		5	½
4	33 ½	6	9/16
5	38 ½	8	23/32
6	44	9	25/32
7	47 ¼	11	29/32
8	51	12	⅞
9	55	14	1
10	58 ¼	15	1 1/16
11	61	16	1 3/32
12	64	18	1 5/32
13	67 ½	19	1 3/16
14	70 ¾	21	1 7/32
15	73 ¼	22	1 5/16

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF SEDIMENT BASIN.
   –TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
   –FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   –FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.

2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.

3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.

4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.

5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.

6. PIPE SCH 40 OR GREATER SHALL BE USED.

7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SEDIMENT BASIN MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

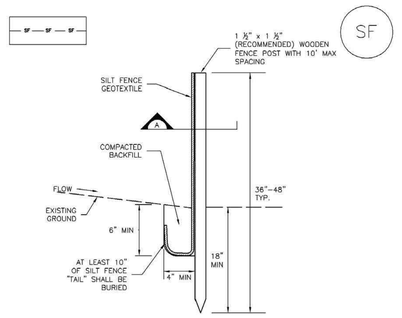
4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).

5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.

6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



SILT FENCE



SECTION A

SF–1. SILT FENCE

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J–HOOK." THE "J–HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SWMP & EROSION CONTROL DETAILS
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

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CALL UNCC
THREE WORKING DAYS
BEFORE YOU DIG
1-800-922-1987
www.uncc.org
UTILITY NOTIFICATION
CENTER OF COLORADO

FOR REVIEW

ONLY VALID FOR CONSTRUCTION IF SEAL & ORIGINAL SIGNATURE ARE ON EACH SHEET

INITIAL PLAN RELEASE: 03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0021-SWMPDTL
SHEET 21 OF 27

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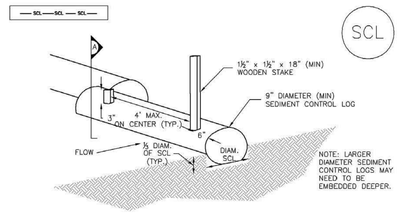
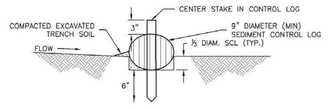
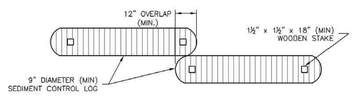


SEDIMENT CONTROL LOG

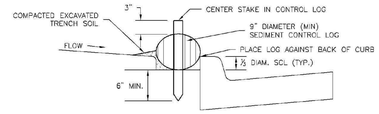


SECTION A

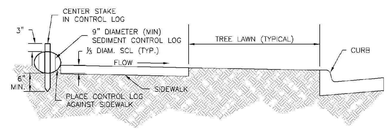


SEDIMENT CONTROL LOG JOINTS

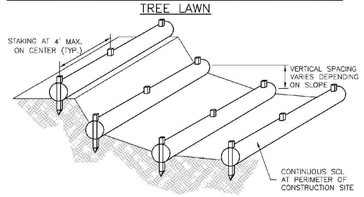
SCL-1. SEDIMENT CONTROL LOG



SCL-2. SEDIMENT CONTROL LOG AT BACK OF CURB



SCL-3. SEDIMENT CONTROL LOG AT SIDEWALK WITH TREE LAWN



SCL-4. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.

2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.

3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ⅓ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.

6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.

7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

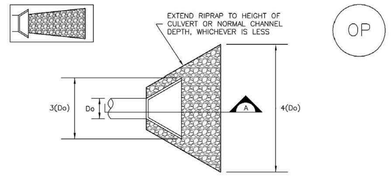
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.

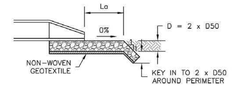
5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION, IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



TEMPORARY OUTLET PROTECTION PLAN



SECTION A

TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE

PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, La (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	13	6
18	10	10	6
	20	16	9
	30	23	12
	40	26	16
24	30	16	9
	40	26	9
	50	26	12
	60	30	16

OP-1. TEMPORARY OUTLET PROTECTION

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
mail@westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330
Western Engineering Consultants, inc LLC

No	REVISION	DATE	BY
0	INITIAL RELEASE	03/19/19	CFC
1	RESUBMITAL PER TOWN 05/02/19 COMMENTS	05/19/20	CFC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E. 60th AVENUE
BENNETT, CO 80102
(303)961-0031

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF OUTLET PROTECTION.
   -DIMENSIONS OF OUTLET PROTECTION.

2. DETAIL IS INTENDED FOR PIPES WITH SLOPE ≤ 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.

3. TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES

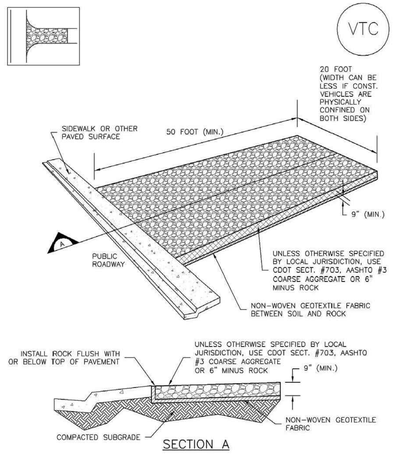
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM AURORA, COLORADO AND PREVIOUS VERSION OF VOLUME 3, NOT AVAILABLE IN AUTOCAD)



SECTION A

VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).

2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

- Use high-pressure water spray at vehicle washing facilities without detergents. Water alone can remove most dirt adequately.
- Do not conduct other activities, such as vehicle repairs, in the wash area.
- Include the location of the washing facilities and the inspection and maintenance procedures in the SWMP.

- **Develop a Spill Prevention and Response Plan.** Spill prevention and response procedures must be identified in the SWMP. Representative procedures include identifying ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and response. The plan should also specify material handling procedures and storage requirements and ensure that clear and concise spill cleanup procedures are provided and posted for areas in which spills may potentially occur. When developing a spill prevention plan, include the following:
  - Note the locations of chemical storage areas, storm drains, tributary drainage areas, surface waterbodies on or near the site, and measures to stop spills from leaving the site.
  - Provide proper handling and safety procedures for each type of waste. Keep Material Safety Data Sheets (MSDSs) for chemical used on site with the SWMP.
  - Establish an education program for employees and subcontractors on the potential hazards to humans and the environment from spills and leaks.
  - Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or municipal sewage treatment facilities to request assistance. Emergency procedures and contact numbers should be provided in the SWMP and posted at storage locations.
  - Describe the procedures, equipment and materials for immediate cleanup of spills and proper disposal.
  - Identify personnel responsible for implementing the plan in the event of a spill. Update the spill prevention plan and clean up materials as changes occur to the types of chemicals stored and used at the facility.

SWMP & EROSION CONTROL DETAILS
ROBERTSON-KAISER ANNEX
PRELIMINARY PLAT
TOWN of KEENESBURG, WELD COUNTY, COLORADO

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www.uncc.org
UTILITY NOTIFICATION CENTER OF COLORADO

FOR REVIEW

ONLY VALID FOR CONSTRUCTION IF SEAL & ORIGINAL SIGNATURE ARE ON EACH SHEET

INITIAL PLAN RELEASE: 03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0022-SWMPDTL
SHEET 22 OF 27

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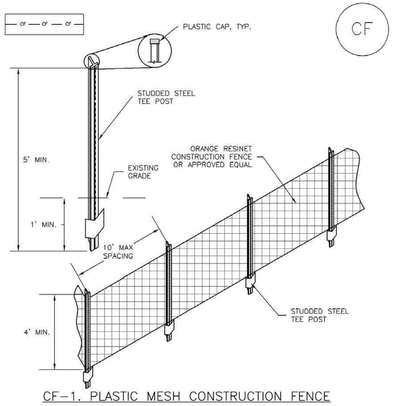


CF-1, PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

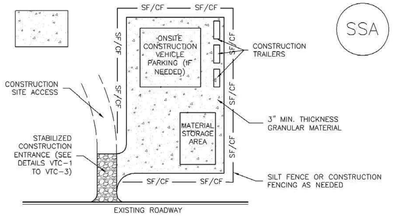
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)



SSA-1, STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF STAGING AREA(S).
   -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330
Western Engineering Consultants, inc LLC

No.	REVISION	DATE	BY
0	INITIAL RELEASE	03/19/19	CFC
1	RESUBMITAL PER TOWN 05/02/19 COMMENTS	05/19/20	CFC

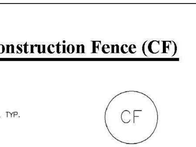
ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E. 60th AVENUE
BENNETT, CO 80102
(303)961-0037

Description

Implement construction site good housekeeping practices to prevent pollution associated with solid, liquid and hazardous construction-related materials and wastes. Stormwater Management Plans (SWMPs) should clearly specify BMPs including these good housekeeping practices:

- Provide for waste management.
- Establish proper building material staging areas.
- Designate paint and concrete washout areas.
- Establish proper equipment/vehicle fueling and maintenance practices.
- Control equipment/vehicle washing and allowable non-stormwater discharges.
- Develop a spill prevention and response plan.

Acknowledgement: This Fact Sheet is based directly on EPA guidance provided in *Developing Your Stormwater Pollution Prevent Plan* (EPA 2007).



Photographs GH-1 and GH-2. Proper materials storage and secondary containment for fuel tanks are important good housekeeping practices. Photos courtesy of CDOT and City of Aurora.

Appropriate Uses

Good housekeeping practices are necessary at all construction sites.

Design and Installation

The following principles and actions should be addressed in SWMPs:

- **Provide for Waste Management.** Implement management procedures and practices to prevent or reduce the exposure and transport of pollutants in stormwater from solid, liquid and sanitary wastes that will be generated at the site. Practices such as trash disposal, recycling, proper material handling, and cleanup measures can reduce the potential for stormwater runoff to pick up construction site wastes and discharge them to surface waters. Implement a comprehensive set of waste-management practices for hazardous or toxic materials, such as paints, solvents, petroleum products, pesticides, wood preservatives, acids, roofing tar, and other materials. Practices should include storage, handling, inventory, and cleanup procedures, in case of spills. Specific practices that should be considered include:

Solid or Construction Waste

- Designate trash and bulk waste-collection areas on-site.

Good Housekeeping	
Functions	
Erosion Control	No
Sediment Control	No
Site/Material Management	Yes

- Recycle materials whenever possible (e.g., paper, wood, concrete, oil).
- Segregate and provide proper disposal options for hazardous material wastes.
- Clean up litter and debris from the construction site daily.
- Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters, and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to minimize the likelihood of contaminated discharges.
- Empty waste containers before they are full and overflowing.

Sanitary and Septic Waste

- Provide convenient, well-maintained, and properly located toilet facilities on-site.
- Locate toilet facilities away from storm drain inlets and waterways to prevent accidental spills and contamination of stormwater.
- Maintain clean restroom facilities and empty portable toilets regularly.
- Where possible, provide secondary containment pans under portable toilets.
- Provide tie-downs or stake-downs for portable toilets.
- Educate employees, subcontractors, and suppliers on locations of facilities.
- Treat or dispose of sanitary and septic waste in accordance with state or local regulations. Do not discharge or bury wastewater at the construction site.
- Inspect facilities for leaks. If found, repair or replace immediately.
- Special care is necessary during maintenance (pump out) to ensure that waste and/or biocide are not spilled on the ground.

Hazardous Materials and Wastes

- Develop and implement employee and subcontractor education, as needed, on hazardous and toxic waste handling, storage, disposal, and cleanup.
- Designate hazardous waste-collection areas on-site.
- Place all hazardous and toxic material wastes in secondary containment.



Photograph GH-3. Locate portable toilet facilities on level surfaces away from waterways and storm drains. Photo courtesy of WWE.

- Hazardous waste containers should be inspected to ensure that all containers are labeled properly and that no leaks are present.

- **Establish Proper Building Material Handling and Staging Areas.** The SWMP should include comprehensive handling and management procedures for building materials, especially those that are hazardous or toxic. Paints, solvents, pesticides, fuels and oils, other hazardous materials or building materials that have the potential to contaminate stormwater should be stored indoors or under cover whenever possible or in areas with secondary containment. Secondary containment measures prevent a spill from spreading across the site and may include dikes, berms, curbing, or other containment methods. Secondary containment techniques should also ensure the protection of groundwater. Designate staging areas for activities such as fueling vehicles, mixing paints, plaster, mortar, and other potential pollutants. Designated staging areas enable easier monitoring of the use of materials and clean up of spills. Training employees and subcontractors is essential to the success of this pollution prevention principle. Consider the following specific materials handling and staging practices:
  - Train employees and subcontractors in proper handling and storage practices.
  - Clearly designate site areas for staging and storage with signs and on construction drawings. Staging areas should be located in areas central to the construction site. Segment the staging area into sub-areas designated for vehicles, equipment, or stockpiles. Construction entrances and exits should be clearly marked so that delivery vehicles enter/exit through stabilized areas with vehicle tracking controls (See Vehicle Tracking Control Fact Sheet).
  - Provide storage in accordance with Spill Protection, Control and Countermeasures (SPCC) requirements and plans and provide cover and impermeable perimeter control, as necessary, for hazardous materials and contaminated soils that must be stored on site.
  - Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or other signs of deterioration and tested for soundness.
  - Reuse and recycle construction materials when possible.
- **Designate Concrete Washout Areas.** Concrete contractors should be encouraged to use the washout facilities at their own plants or dispatch facilities when feasible; however, concrete washout commonly occurs on construction sites. If it is necessary to provide for concrete washout areas on-site, designate specific washout areas and design facilities to handle anticipated washout water. Washout areas should also be provided for paint and stucco operations. Because washout areas can be a source of pollutants from leaks or spills, care must be taken with regard to their placement and proper use. See the Concrete Washout Area Fact Sheet for detailed guidance.

  Both self-constructed and prefabricated washout containers can fill up quickly when concrete, paint, and stucco work are occurring on large portions of the site. Be sure to check for evidence that contractors are using the washout areas and not dumping materials onto the ground or into drainage facilities. If the washout areas are not being used regularly, consider posting additional signage, relocating the facilities to more convenient locations, or providing training to workers and contractors.

  When concrete, paint, or stucco is part of the construction process, consider these practices which will help prevent contamination of stormwater. Include the locations of these areas and the maintenance and inspection procedures in the SWMP.

- Do not washout concrete trucks or equipment into storm drains, streets, gutters, uncontained areas, or streams. Only use designated washout areas.
- Establish washout areas and advertise their locations with signs. Ensure that signage remains in good repair.
- Provide adequate containment for the amount of wash water that will be used.
- Inspect washout structures daily to detect leaks or tears and to identify when materials need to be removed.
- Dispose of materials properly. The preferred method is to allow the water to evaporate and to recycle the hardened concrete. Full service companies may provide dewatering services and should dispose of wastewater properly. Concrete wash water can be highly polluted. It should not be discharged to any surface water, storm sewer system, or allowed to infiltrate into the ground in the vicinity of waterbodies. Washwater should not be discharged to a sanitary sewer system without first receiving written permission from the system operator.

- **Establish Proper Equipment/Vehicle Fueling and Maintenance Practices.** Create a clearly designated on-site fueling and maintenance area that is clean and dry. The on-site fueling area should have a spill kit, and staff should know how to use it. If possible, conduct vehicle fueling and maintenance activities in a covered area. Consider the following practices to help prevent the discharge of pollutants to stormwater from equipment/vehicle fueling and maintenance. Include the locations of designated fueling and maintenance areas and inspection and maintenance procedures in the SWMP.
  - Train employees and subcontractors in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shutoff valves, etc.).
  - Inspect on-site vehicles and equipment regularly for leaks, equipment damage, and other service problems.
  - Clearly designate vehicle/equipment service areas away from drainage facilities and watercourses to prevent stormwater run-on and runoff.
  - Use drip pans, drip cloths, or absorbent pads when replacing spent fluids.
  - Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible.
- **Control Equipment/Vehicle Washing and Allowable Non-Stormwater Discharges.** Implement practices to prevent contamination of surface and groundwater from equipment and vehicle wash water. Representative practices include:
  - Educate employees and subcontractors on proper washing procedures.
  - Use off-site washing facilities, when available.
  - Clearly mark the washing areas and inform workers that all washing must occur in this area.
  - Contain wash water and treat it using BMPs. Infiltrate washwater when possible, but maintain separation from drainage paths and waterbodies.

SWMP & EROSION CONTROL DETAILS
ROBERTSON-KAISER ANNEX
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INITIAL PLAN RELEASE: 03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0023-SWMPDTL
SHEET 23 OF 27

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INTERSECTION SIGHT TRIANGLES SHOWN PER AASHTO FIGURE 9-15, CASES B1 & B2, DESIGN SPEED = 55 MPH (POSTED SPEED = 45 MPH), USING COMBINATION TRUCK. LEFT TURN ISD = 930', RIGHT TURN ISD = 850'.

ALL AREAS OUTSIDE HARDSCAPE AND ROADBASE AREAS SHALL BE SEEDED per WELD COUNTY SPECIFICATIONS.

LUMINAIRE SCHEDULE						
SYMBOL	QTY	LABEL	LUM. WATTS	LUM. LUMENS	LLF	CATLOG
⊟	6	A	156.5	14852	0.900	LDRL-T2-F06-E

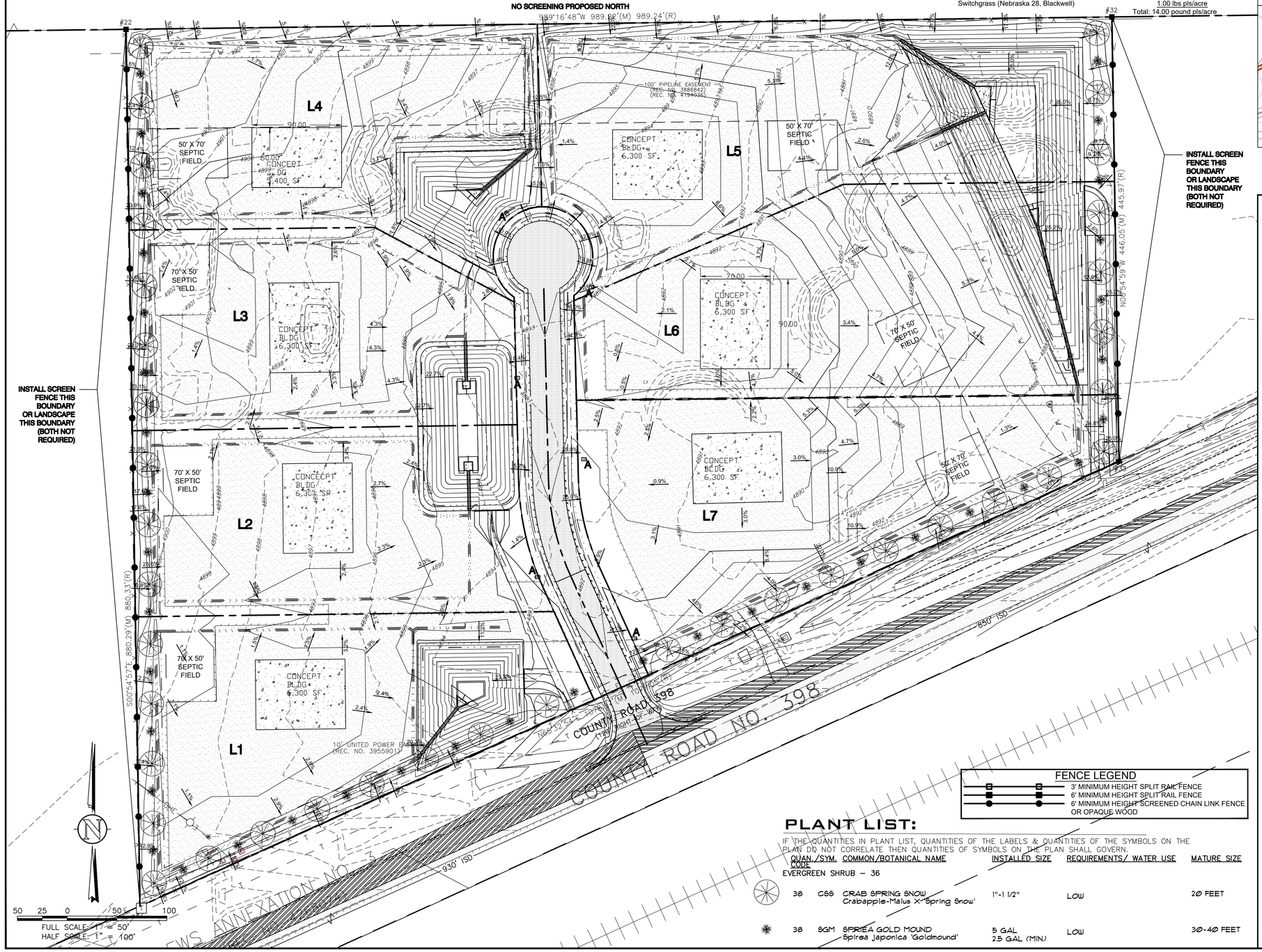
WELD COUNTY SEED MIX:

Western Wheatgrass (Arriba, Barton, Rosana)	2.50 lbs pls/acre
Blue Grama (Hachital, Lovington)	1.50 lbs pls/acre
Sideoats Grama (Vaughn, Butte, Niner, El Reno, Haskell)	2.25 lbs pls/acre
Smooth Brome (Lincoln, Manchar)	2.75 lbs pls/acre
Sand dropseed	0.25 lbs pls/acre
Perennial Ryegrass (Calibra or Garibaldi tetraploid)	1.00 lbs pls/acre
Slender Wheatgrass (Pryor, Revenue or San Luis)	2.50 lbs pls/acre
Alkaligrass (Fults II, Salt on Sea)	0.25 lbs pls/acre
Switchgrass (Nebraska 28, Blackwell)	1.00 lbs pls/acre
	Total: 14.00 pound pls/acre

NO SCREENING PROPOSED NORTH

INSTALL SCREEN FENCE THIS BOUNDARY OR LANDSCAPE THIS BOUNDARY (BOTH NOT REQUIRED)

INSTALL SCREEN FENCE THIS BOUNDARY OR LANDSCAPE THIS BOUNDARY (BOTH NOT REQUIRED)



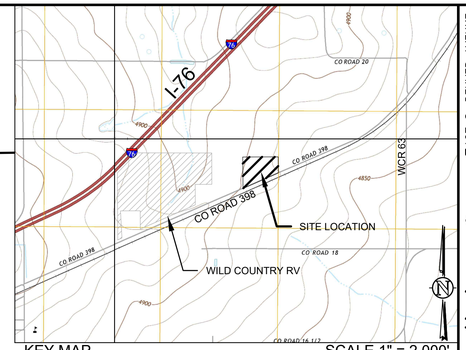
FENCE LEGEND

- 3' MINIMUM HEIGHT SPLIT RAIL FENCE
- 6' MINIMUM HEIGHT SPLIT RAIL FENCE
- 6' MINIMUM HEIGHT SCREENED CHAIN LINK FENCE OR OPAQUE WOOD

PLANT LIST:

IF THE QUANTITIES IN PLANT LIST, QUANTITIES OF THE LABELS & QUANTITIES OF THE SYMBOLS ON THE PLAN DO NOT CORRELATE THEN QUANTITIES OF SYMBOLS ON THE PLAN SHALL GOVERN.

QUAN./SYM. CODE	COMMON/BOTANICAL NAME	INSTALLED SIZE	REQUIREMENTS/ WATER USE	MATURE SIZE
EVERGREEN SHRUB – 36				
38 CSS	CRAB SPRING SNOW Crabapple-Malus X 'Spring Snow'	1"-1 1/2"	LOW	20 FEET
38 SGM	SPIREA GOLD MOUND Spirea Japonica 'Goldmound'	5 GAL 2.5 GAL (MIN)	LOW	30-40 FEET



KEY MAP SCALE 1" = 2,000'

SE 1/4, S24, T2N, R64W, 6th P.M.

SHOWN KEY MAP TAKEN FROM USGS QUAD MAPS - KEENESBURG 40104-A5, PROSPECT VALLEY 40104-A5, KLUG RANCH 40104-B5 & TAMPA 40104-B4

NOTES

THIS PLAN IS INTENDED AS THE SCREENING AND LANDSCAPE PLAN FOR THE RK SUBDIVISION

ALL IMPROVEMENTS ARE EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND TOWN OF KEENESBURG RESPECTIVELY.

SEE "ROBERTSON–LEWTON ANNEXATION" COMPLETED BY AMERICAN WEST LAND SURVEY – DATED NOVEMBER 04, 2013.

SEE COVER SHEET FOR BASIS OF BEARING.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY DUNKER ENGINEERING CONSULTING, INC.

SHOWN PROPOSED LAYOUT PROVIDED BY DUNKER ENGINEERING CONSULTING, INC. DATED DECEMBER 06, 2013. ANY SUBSEQUENT REVISIONS MADE BY DUNKER ENGINEERING CONSULTING, INC. ARE NOT REFLECTED IN THIS PLAN SET. REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE WESTERN ENGINEERING REVISIONS ONLY.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED WATER VALVE
- PIPE CROSSOVER
- MANHOLE
- EXISTING ASPHALT PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED GRAVEL

LINETYPE LEGEND

- LOT / PROPERTY LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- EXISTING OVERHEAD ELEC
- EXISTING ELECTICAL LINE
- EXISTING STORM LINE
- EXISTING SANITARY LINE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING FIBER OPTIC LINE
- EXISTING TELEPHONE LINE
- PROPOSED SANITARY LINE
- PROPOSED SANITARY SERVICE
- PROPOSED STORM LINE
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED GAS LINE
- PROPOSED ELECTRIC LINE
- PROPOSED TELEPHONE LINE

127 S. DENVER AVENUE
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No.	REVISION	DATE	BY
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ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E. 60th AVENUE
BENNETT, CO 80102
(303)961-0033

SCREENING AND LANDSCAPE PLAN
ROBERTSON -KAISER ANNEX
PRELIMINARY PLAT
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INITIAL PLAN RELEASE: 03/19/19
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0024-LS PLAN
SHEET 24 OF 27

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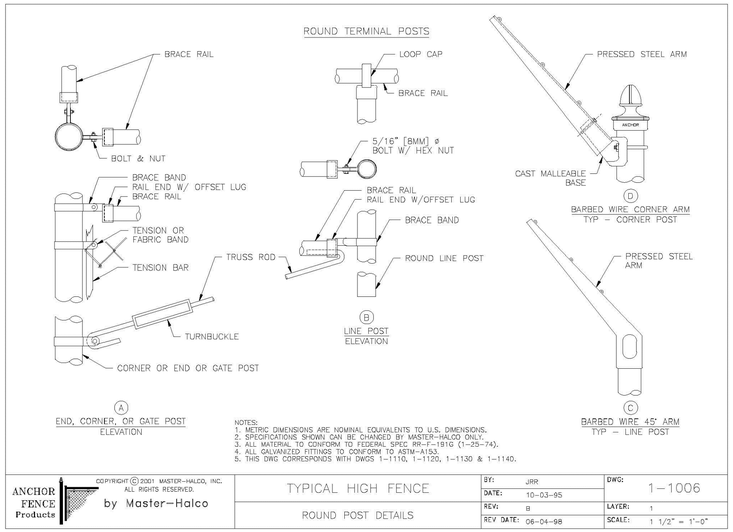

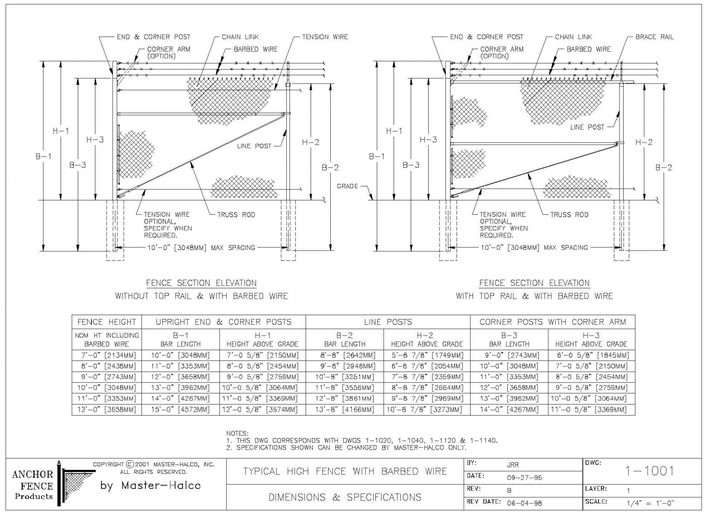

FENCE HEIGHT	UPRIGHT END & CORNER POSTS		LINE POSTS		CORNER POSTS WITH CORNER ARM	
NOM HT INCLUDING BARBED WIRE	B-1 BAR LENGTH	H-1 HEIGHT ABOVE GRADE	B-2 BAR LENGTH	H-2 HEIGHT ABOVE GRADE	B-3 BAR LENGTH	H-3 HEIGHT ABOVE GRADE
7'-0" [2134MM]	10'-0" [3048MM]	7'-0 5/8" [2150MM]	8'-8" [2642MM]	5'-8 7/8" [1749MM]	9'-0" [2743MM]	6'-0 5/8" [1845MM]
8'-0" [2438MM]	11'-0" [3353MM]	8'-0 5/8" [2454MM]	9'-8" [2946MM]	6'-8 7/8" [2054MM]	10'-0" [3048MM]	7'-0 5/8" [2150MM]
9'-0" [2743MM]	12'-0" [3658MM]	9'-0 5/8" [2758MM]	10'-8" [3251MM]	7'-8 7/8" [2359MM]	11'-0" [3353MM]	8'-0 5/8" [2454MM]
10'-0" [3048MM]	13'-0" [3962MM]	10'-0 5/8" [3064MM]	11'-8" [3556MM]	8'-8 7/8" [2664MM]	12'-0" [3658MM]	9'-0 5/8" [2758MM]
11'-0" [3353MM]	14'-0" [4267MM]	11'-0 5/8" [3369MM]	12'-8" [3861MM]	9'-8 7/8" [2969MM]	13'-0" [3962MM]	10'-0 5/8" [3064MM]
12'-0" [3658MM]	15'-0" [4573MM]	12'-0 5/8" [3674MM]	13'-8" [4166MM]	10'-8 7/8" [3273MM]	14'-0" [4267MM]	11'-0 5/8" [3369MM]

NOTES:
1. THIS DWG CORRESPONDS WITH DWGS 1-1020, 1-1040, 1-1120 & 1-1140.
2. SPECIFICATIONS SHOWN CAN BE CHANGED BY MASTER-HALCO ONLY.

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by Master-Halco
TYPICAL HIGH FENCE WITH BARBED WIRE
DIMENSIONS & SPECIFICATIONS
BY: JRR
DATE: 09-27-95
REV: B
REV DATE: 06-04-98
DWG: 1-1001
LAYER: 1
SCALE: 1/4" = 1'-0"

PLANT LIST:

IF THE QUANTITIES IN PLANT LIST, QUANTITIES OF THE LABELS & QUANTITIES OF THE SYMBOLS ON THE PLAN DO NOT CORRELATE THEN QUANTITIES OF SYMBOLS ON THE PLAN SHALL GOVERN.

QUAN./SYM.	CODE	COMMON/BOTANICAL NAME	INSTALLED SIZE	REQUIREMENTS/ WATER USE	MATURE SIZE
EVERGREEN SHRUB - 36					
38	CSS	CRAB SPRING SNOW Crabapple-Malus X 'Spring Snow'	1"-1 1/2"	LOW	20 FEET
38	SGM	SPIREA GOLD MOUND Spirea Japonica 'Goldmound'	5 GAL 2.5 GAL (MIN)	LOW	2-3 FEET



METAL SIDING FENCE DETAIL

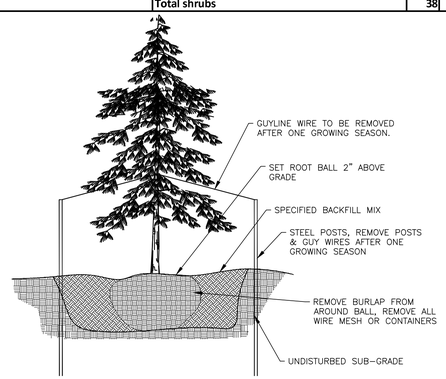
SIDING TO BE 22 GAUGE MIN.

LANDSCAPE NOTES:

1. NATIVE SEEDING- 70% BUFFALO GRASS, 30% BLUE GRAMA-- SOURCE: ARKANSAS VALLEY SEED COMPANY.
2. ALL PLANTING BEDS TO MULCHED WITH 1.5" MINIMUM SIZE MOUNTAIN GRANITE, PARKING ISLAND BEDS TO HAVE 3" OF TAN COLORED BREEZE.
3. INCORPORATE 3 CUBIC YARDS OF ORGANIC COMPOST PER 1000 SQUARE FEET OF VEGETATED AREA.
4. IRRIGATION TO BE DESIGN BUILT TO MAXIMIZE EFFICIENCY OF DROUGHT TOLERANT LANDSCAPING. ALL TREES, SHRUBS AND GRASSES WILL BE WATERED BY A DRIP SYSTEM AND ALL NATIVE GRASSES WILL HAVE A SPRINKLER SYSTEM THAT WILL BE USED TO ESTABLISH THE GROWTH AND SUPPLEMENT THE GRASS DURING DROUGHT PERIODS.
5. ALL TREES TO BE PLANTED A MINIMUM OF 5' FROM ALL STORMWATER, WATER AND SEWER LINES.
6. ALL DECIDUOUS TREES SHALL BE STAKED WITH 2 WOOD STAKES.
7. ARTIFICIAL PLANTS MAY NOT BE USED FOR EXTERIOR LANDSCAPING.
8. THE PROPERTY OWNER WILL REMOVE AND REPLACE DEAD OR DISEASED PLANT MATERIALS WITH THE SAME TYPE, SIZE AND QUANTITY OF PLANT MATERIAL AS ORIGINALLY INSTALLED.
9. THE LANDSCAPE XERISCAPE DESIGN IS SUCH THAT ALL AREAS SHALL BE CLASSIFIED AS LOW MAINTENANCE ZONES ONCE THE VEGETATION IS ESTABLISHED.

RK ANNEXATION PLANT LIST

SYMBOL	NAME	SCIENTIFIC NAME	QTY	SIZE	MATURE SIZE	SPREAD
TREES						
CSS	Crab Spring Snow	Crabapple-Malus x 'Spring Snow'	38	1"-1 1/2"	20'	12'
		Total trees	**38**			
SHRUBS/Ornamental Grasses						
SGM	Spirea Gold Mound	Spriea gold mound-Spirea japonica 'Goldmound'	38	5gal	2'-3'	3'-4'
		Total shrubs	**38**			



EVERGREEN TREE PLANTING DETAIL

ALL LANDSCAPE AND SEEDED AREAS WILL BE MAINTAINED. THESE INCLUDE ANY COMBINATION OF LIVING PLANTS, SUCH AS TREES, SHRUBS, VINES, GROUND COVERS, FLOWERS OR TURF, AND MAY INCLUDE NATURAL FEATURES SUCH AS ROCK, STONE AND BARK, AND ARCHITECTURAL FEATURES INCLUDING, BUT NOT LIMITED TO, FOUNTAINS, REFLECTING POOLS, ART WORKS, SCREEN WALLS, FENCES, STREET FURNITURE, WALKS, DECKS AND ORNAMENTAL CONCRETE OR STONEWORK.

WELD COUNTY SEED MIX:

Western Wheatgrass (Arriba, Barton, Rosana)	2.50 lbs pls/acre
Blue Grama (Hachital, Lovington)	1.50 lbs pls/acre
Sideoats Grama (Vaughn, Butte, Niner, El Reno, Haskell)	2.25 lbs pls/acre
Smooth Brome (Lincoln, Manchar)	2.75 lbs pls/acre
Sand dropseed	0.25 lbs pls/acre
Perennial Ryegrass (Calibra or Garibaldi tetraploid)	1.00 lbs pls/acre
Slender Wheatgrass (Pryor, Revenue or San Luis)	2.50 lbs pls/acre
Alkaligrass (Fults II, Salt on Sea)	0.25 lbs pls/acre
Switchgrass (Nebraska 28, Blackwell)	1.00 lbs pls/acre
	Total: 14.00 pound pls/acre

SCREENING NOTES:

1. 6' MINIMUM HEIGHT WOOD FENCE TO BE INSTALL ALONG SUBDIVISION WEST AND EAST PROPERTY LINES.
2. INTERNAL FENCING NOT REQUIRED TO BE SCREENED.

Western Engineering Consultants, inc LLC
127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330

No.	REVISION	DATE	BY
0	INITIAL RELEASE	03/19/19	CFC
1	RESUBMITAL PER TOWN 05/02/19 COMMENTS	05/19/20	CFC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
5053 1 E 160th AVENUE
BRIGHTON, CO 80602
(303)961-0031

SCREENING/LANDSCAPE DETAILS
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DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0187.002.00
DOC CON # 0025-LS DTLS
SHEET 25 OF 27

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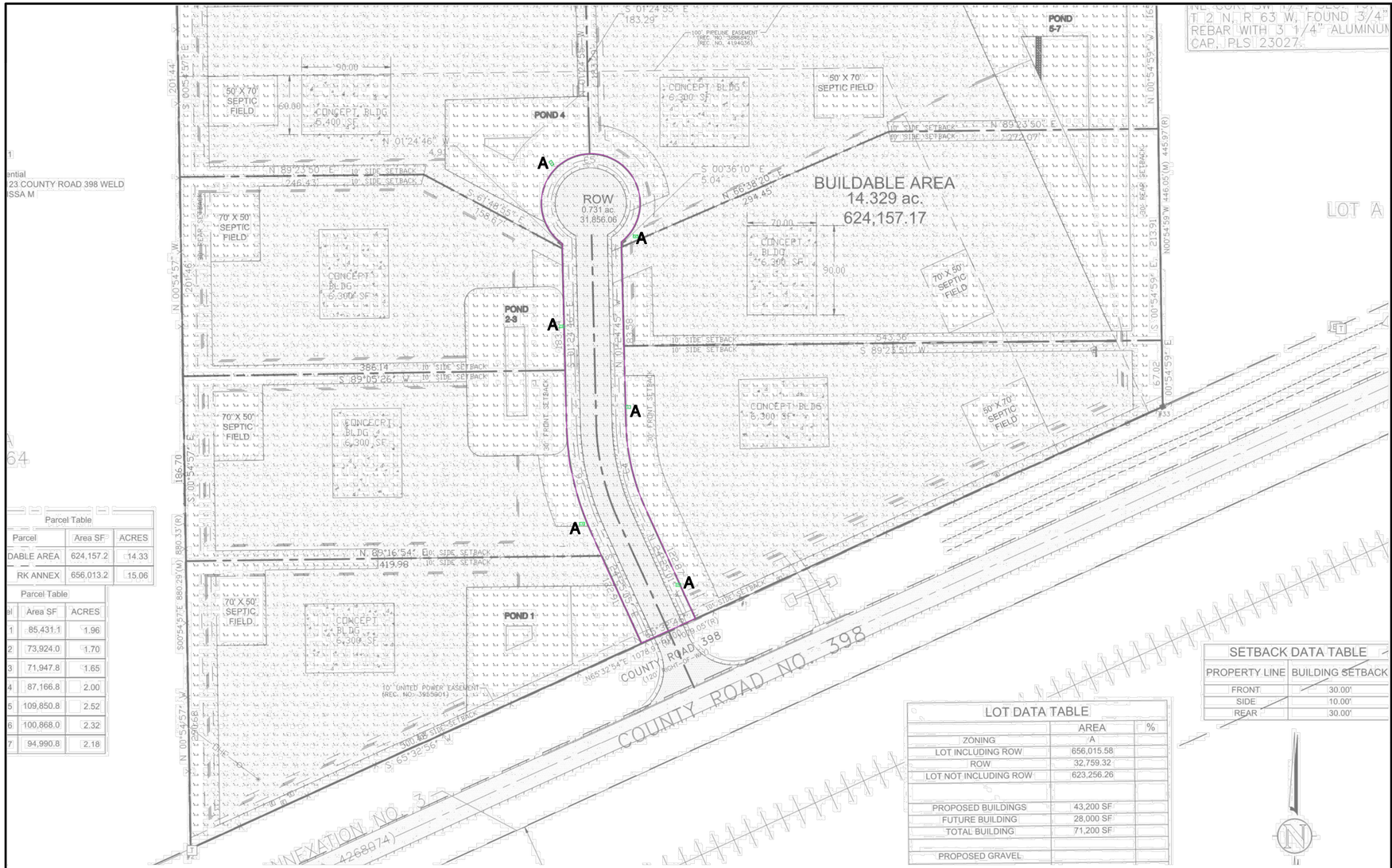

Parcel Table

Parcel	Area SF	ACRES
BUILDABLE AREA	624,157.2	14.33
RK ANNEX	656,013.2	15.06

Parcel Table

Parcel	Area SF	ACRES
1	85,431.1	1.96
2	73,924.0	1.70
3	71,947.8	1.65
4	87,166.8	2.00
5	109,850.8	2.52
6	100,868.0	2.32
7	94,990.8	2.18

SETBACK DATA TABLE

PROPERTY LINE	BUILDING SETBACK
FRONT	30.00'
SIDE	10.00'
REAR	30.00'

LOT DATA TABLE

	AREA	%
ZONING	A	
LOT INCLUDING ROW	656,015.58	
ROW	32,759.32	
LOT NOT INCLUDING ROW	623,256.26	
PROPOSED BUILDINGS	43,200 SF	
FUTURE BUILDING	28,000 SF	
TOTAL BUILDING	71,200 SF	
PROPOSED GRAVEL		

Luminaire Schedule

Symbol	Qty	Label	Lum. Watts	Lum. Lumens	LLF	Catalog
A	6	A	156.5	14852	0.900	LDRL-T2-F06-E

Calculation Summary

Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Site Area	Fc	0.12	1.8	0.0	N.A.	N.A.
Row	Fc	1.20	1.8	0.3	4.00	6.00

ILLUMINATION SYSTEMS
5 SOUTH KALAMATH STREET
DENVER, CO 80223
PHONE: 303.295.2900
FAX: 303.293.8337
WWW.ILLUMSYS.COM

RK ANNEX
KEENESBURG, CO

DATE:9/4/2019

PHOTOMETRICS ARE NOT TO SCALE

DRAWINGS ARE FOR ESTIMATING PURPOSES ONLY.

FOOT-CANDLE VALUES ARE PREDICTED AT HORIZONTAL CALCULATIONS UNLESS SPECIFIED OTHERWISE. ACTUAL FOOT-CANDLES MAY VARY.

FINAL CONSTRUCTION DRAWINGS & CALCULATIONS ARE THE RESPONSIBILITY OF A LICENSED ARCHITECT OR ENGINEER.

REFLECTANCES:
N./A. DIRECT CALCULATIONS ONLY

MOUNTING HEIGHT:
30' - 0" A.F.G.

CALCULATION SPACING:
10' - 0" x 10' - 0"

FOOTCANDLE CALC HEIGHT:
0' - 0" A.F.G.

ADDITIONAL NOTES:
FIXTURES MAGNIFIED X2

CREATED BY:
KENDYL COLONIAS

FOR PRICING AND AVAILABILITY, CONTACT ILLUMINATION SYSTEMS AT 303.295.2900

DSC DESIGN, SUPPORT & CONTROLS 1

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330
Western Engineering Consultants, inc LLC

No.	REVISION	DATE	BY
1	RESUBMITAL PER TOWN COMMENTS	05/19/20	CFC

ROBERTSON-KAISER SUBDIVISION
CONTACT: RICK ROBERTSON
50531 E. 60th AVENUE
BENNETT, CO 80102
(303)961-0033

PHOTOMETRIC PLAN
ROBERTSON -KAISER ANNEX
PRELIMINARY PLAT
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Lumark

DESCRIPTION

The RL LED luminaire provides uncompromising optical performance and outstanding versatility for a wide variety of area and roadway applications. Patented modular LightBAR™ technology delivers uniform and energy-conscious illumination to walkways, parking lots, and roadways. UL/cUL listed for wet locations.

Catalog #	LDRL-T2-F06-E	Type
Project	RK ANNEX	A
Comments		Date
Prepared by	ILLUMINATION SYSTEMS	09/04/19

SPECIFICATION FEATURES

Construction
Heavy-duty cast aluminum housing and removable door. 3G vibration rated to ensure strength of construction and longevity in application. Die-cast aluminum door frame features integral hinges for tool-less maintenance access.

Optics
Choice of twelve patented, high-efficiency AccuLED Optics™ distributions. Optics are precisely designed to shape the light output, maximizing efficiency and application spacing. AccuLED Optics technology creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K CCT, 5000K CCT and 5700K CCT. For the ultimate level of spill light control, an optional house-side shield accessory can be field or factory installed. The house-side shield is designed to seamlessly integrate with the SL2, SL3 or SL4 optics.

Electrical
LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficacy, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Greater than 0.9 power factor, less than 20% harmonic distortion, and is suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature an IP66 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Occupancy sensor and dimming options available.

Mounting
Two-bolt/one-bracket slipfitter with cast-in pipe stop and leveling steps. Fixed-in-place birdguard seals around 1-1/4" or 2" mounting arms.

Finish
Components finished in a standard grey, five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Consult your lighting representative at Eaton for a complete selection of standard colors including black and bronze. RAL and custom color matches available.

Warranty
Five-year warranty.

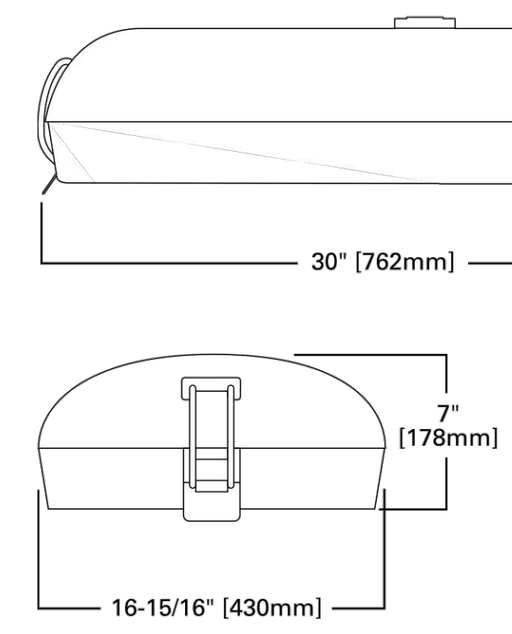


RL
LED ROADWAY LARGE COBRAHEAD

1 - 6 LightBARs
LED

ROADWAY LUMINAIRE

DIMENSIONS



CERTIFICATION DATA
UL/cUL Listed
LM79 / LM80 Compliant
ISO 9001
IP66 LightBARs
3G Vibration Rated

ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60Hz, 347V/60Hz, 480V/60Hz
-40°C Minimum Temperature
40°C Ambient Temperature Rating
50°C [Optional] Ambient Temperature Rating

EPA
Effective Projected Area: (Sq. Ft.)
0.87

SHIPPING DATA
Approximate Net Weight:
35 lbs. (15.91 kgs.)

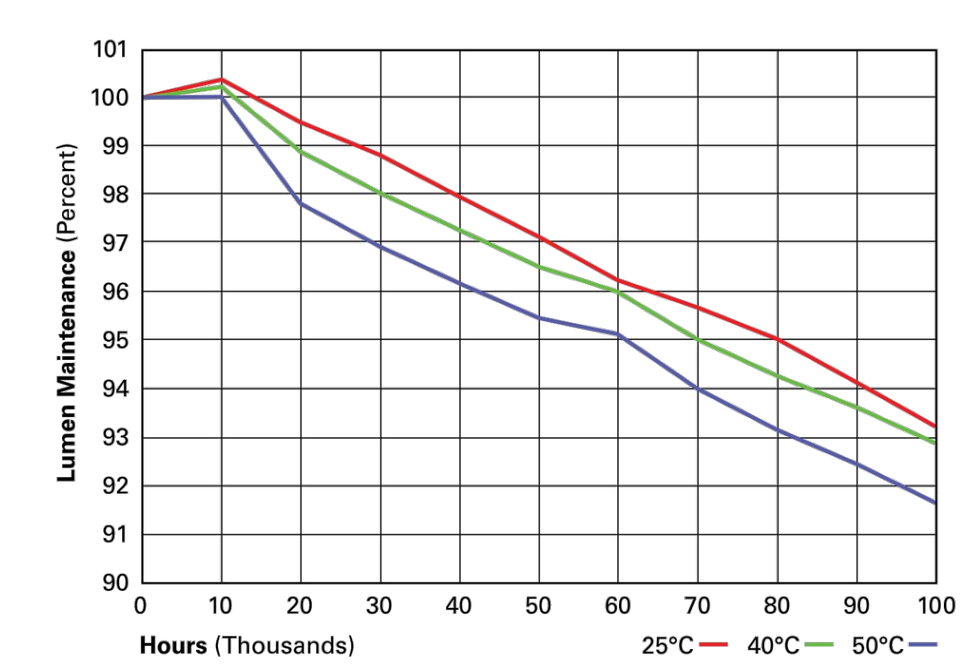
POWER AND LUMENS BY BAR COUNT (21 LED LIGHTBARS)

Number of LightBARs		E01	E02	E03	E04	E05	E06
Drive Current		350mA Drive Current					
Power (Watts)		25W	52W	75W	97W	127W	149W
Current @ 120V (A)		0.22	0.44	0.63	0.82	1.07	1.26
Current @ 277V (A)		0.10	0.20	0.28	0.36	0.48	0.56
Power (Watts)		31W	58W	82W	99W	132W	159W
Current @ 347V (A)		0.11	0.19	0.28	0.29	0.39	0.48
Current @480V (A)		0.09	0.15	0.20	0.21	0.30	0.36
T2	Lumens	2,999	5,997	8,996	11,994	14,993	17,991
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
T3	Lumens	2,986	5,972	8,957	11,943	14,929	17,915
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3
T4	Lumens	2,939	5,877	8,816	11,754	14,693	17,632
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3
5MQ	Lumens	3,108	6,215	9,323	12,431	15,538	18,646
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
5WQ	Lumens	3,066	6,131	9,197	12,262	15,328	18,393
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
5XQ	Lumens	3,092	6,184	9,276	12,368	15,461	18,553
	BUG Rating	B2-U0-G1	B3-U0-G2	B3-U0-G3	B4-U0-G3	B4-U0-G3	B4-U0-G4
SL2	Lumens	2,928	5,856	8,784	11,712	14,640	17,568
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
SL3	Lumens	2,969	5,937	8,906	11,875	14,843	17,812
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3
SL4	Lumens	2,882	5,764	8,646	11,528	14,410	17,292
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3
RW	Lumens	3,004	6,007	9,011	12,015	15,018	18,022
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4
SLL/SLR	Lumens	2,693	5,387	8,080	10,774	13,467	16,161
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B2-U0-G4

LUMEN MAINTENANCE

Ambient Temperature	25,000 Hours*	50,000 Hours*	60,000 Hours*	100,000 Hours	Theoretical L70 (Hours)
25°C	> 99%	> 97%	> 96%	> 93%	> 450,000
40°C	> 98%	> 97%	> 96%	> 92%	> 425,000
50°C	> 97%	> 96%	> 95%	> 91%	> 400,000

* Per IESNA TM-21 data.



LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99
50°C	0.96

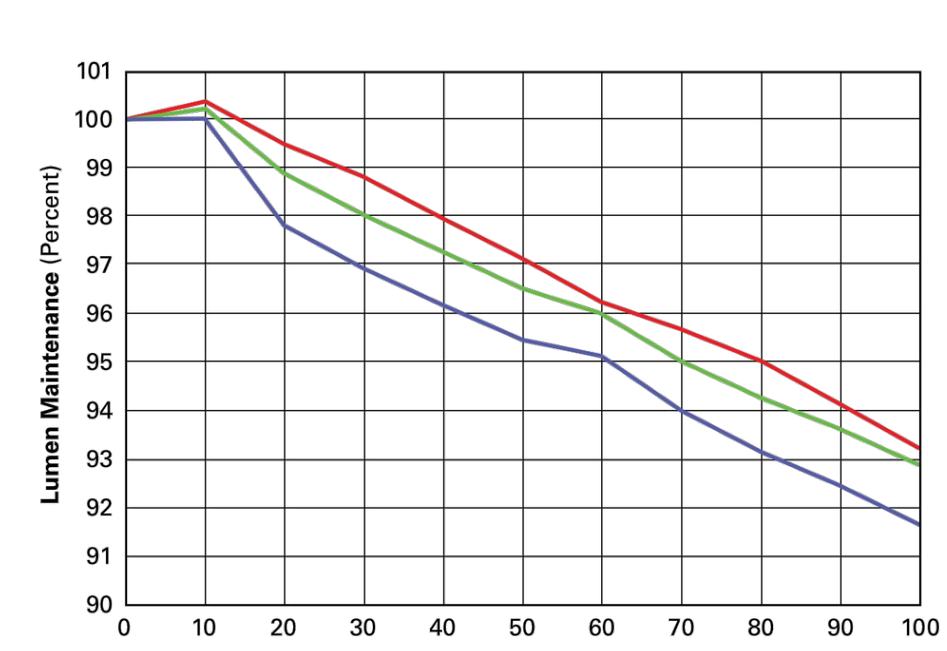
POWER AND LUMENS BY BAR COUNT (7 LED LIGHTBARS)

Number of LightBARs		F01	F02	F03	F04	F05	F06
Drive Current		1A Drive Current					
Power (Watts)		26W	55W	78W	102W	133W	157W
Current @ 120V (A)		0.22	0.46	0.66	0.86	1.12	1.31
Current @ 277V (A)		0.10	0.21	0.29	0.37	0.50	0.58
Power (Watts)		32W	60W	85W	105W	137W	164W
Current @ 347V (A)		0.11	0.19	0.28	0.30	0.41	0.49
Current @ 480V (A)		0.09	0.15	0.21	0.22	0.31	0.37
T2	Lumens	2,475	4,951	7,426	9,902	12,377	14,852
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
T3	Lumens	2,465	4,930	7,395	9,859	12,324	14,789
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
T4	Lumens	2,426	4,852	7,278	9,704	12,129	14,555
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
5MQ	Lumens	2,565	5,131	7,696	10,262	12,827	15,393
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2
5WQ	Lumens	2,531	5,061	7,592	10,123	12,654	15,184
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
5XQ	Lumens	2,553	5,105	7,658	10,210	12,763	15,316
	BUG Rating	B2-U0-G1	B3-U0-G2	B3-U0-G3	B4-U0-G3	B4-U0-G3	B4-U0-G3
SL2	Lumens	2,417	4,834	7,251	9,668	12,086	14,503
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
SL3	Lumens	2,451	4,901	7,352	9,803	12,254	14,704
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3
SL4	Lumens	2,379	4,758	7,138	9,517	11,896	14,275
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3
RW	Lumens	2,480	4,959	7,439	9,918	12,398	14,878
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4
SLL/SLR	Lumens	2,224	4,447	6,671	8,894	11,118	13,341
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G4

LUMEN MAINTENANCE

Ambient Temperature	25,000 Hours*	50,000 Hours*	60,000 Hours*	100,000 Hours	Theoretical L70 (Hours)
25°C	> 99%	> 97%	> 96%	> 93%	> 450,000
40°C	> 98%	> 97%	> 96%	> 92%	> 425,000
50°C	> 97%	> 96%	> 95%	> 91%	> 400,000

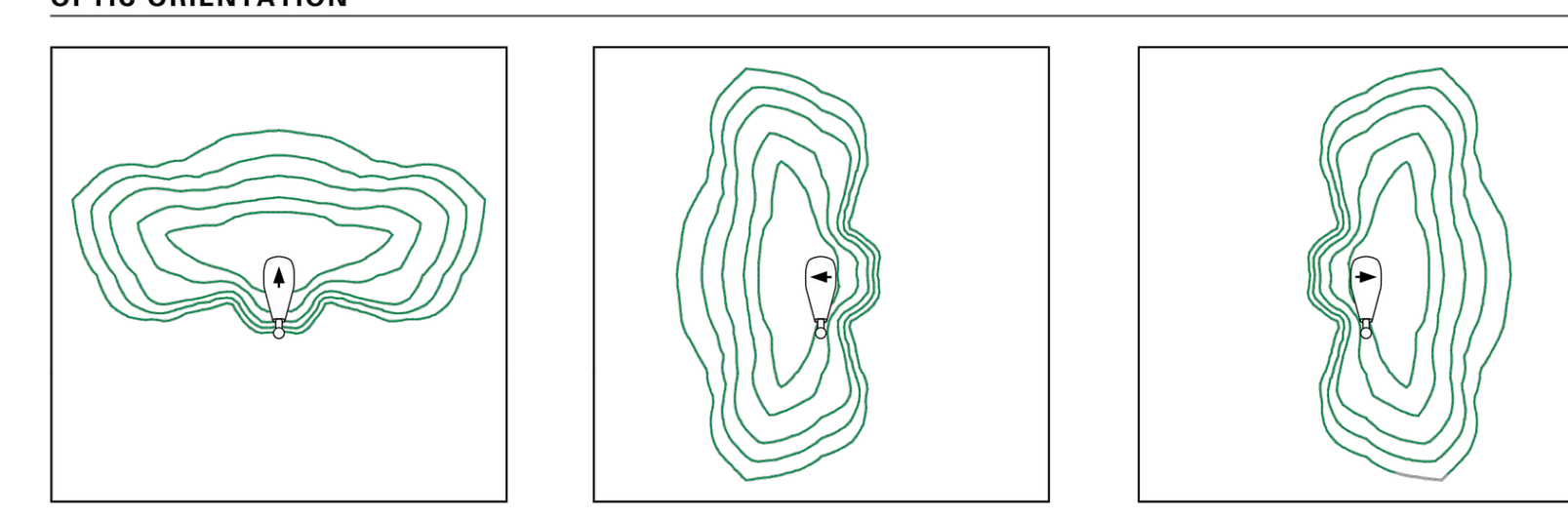
* Per IESNA TM-21 data.



LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99
50°C	0.96

OPTIC ORIENTATION



Standard | Optics Rotated Left @ 90° [L90] | Optics Rotated Right @ 90° [R90]

CONTROL OPTIONS

0-10V (DIM)
This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (PER and PER7)
Photocontrol receptacles (PER and PER7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

WaveLinx Wireless Outdoor Lighting Control Module (WOLC-7P-10A)
The 7-pin wireless outdoor lighting control module enables WaveLinx to control outdoor area, site and flood lighting. WaveLinx controls outdoor lighting using schedules to provide ON, OFF and dimming controls based on astronomic or time schedules based on a 7 day week.

ORDERING INFORMATION

Sample Number: LDRL-T3-E06-E-AP

Lamp Type	Product Family [1]	Distribution	Number of LightBARs [2, 3]	Voltage
LD=Solid State Light Emitting Diodes	**RL**=Roadway Large Cobrahead	**T2**=Type II **T3**=Type III **T4**=Type IV **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **RW**=Rectangular Wide **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **5XQ**=Type V Square Extra Wide **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right	**E01**=(1) 21 LED LightBAR **E02**=(2) 21 LED LightBARs **E03**=(3) 21 LED LightBARs **E04**=(4) 21 LED LightBARs **E05**=(5) 21 LightBARs **E06**=(6) 21 LightBARs **F01**=(1) 7 LED LightBAR **F02**=(2) 7 LED LightBARs **F03**=(3) 7 LED LightBARs **F04**=(4) 7 LED LightBARs **F05**=(5) 7 LED LightBARs **F06**=(6) 7 LED LightBARs	**E**=Universal (120-277V) **347**=347V **480**=480V [4]

Options (Add as Suffix)	Accessories (Order Separately)
7030=70 CRI / 3000K CCT [5] **7050**=70 CRI / 5000K CCT [5] **7060**=70 CRI / 5700K CCT [5] **8030**=80 CRI / 3000K CCT [5] **HA**=50°C High Ambient Temperature Rating **PER**=NEMA Twistlock Photocontrol Receptacle **PER7**=NEMA 7-PIN Twistlock Photocontrol Receptacle **DIM**=0-10V Dimming Driver **2L**=Two Circuits [6] **L90**=Optics Rotated Left 90° **R90**=Optics Rotated Right 90° **LCF**=LightBAR Cover Plate Matches Housing Finish **K**=Level Indicator **HSS**=Factory Installed House Side Shield [7] **BK**=Black **BZ**=Bronze	**OA/RA1013**=Photocontrol Shorting Cap **OA/RA1014**=NEMA Photocontrol - 120V **OA/RA1016**=NEMA Photocontrol - Multi-Tap **OA/RA1027**=NEMA Photocontrol - 480V **OA/RA1201**=NEMA Photocontrol - 347V **MA1252**=10kV Circuit Module Replacement **LB/HSS-21**=Field Installed House Side Shield for "E" LightBARs [7, 8] **LB/HSS-07**=Field Installed House Side Shield for "F" LightBARs [7, 8] **WOLC-7P-10A**=WaveLinx Outdoor Control Module (7-pin) [9]

NOTES:
1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
2. Standard 4000K CCT and 70 CRI nominal.
3. 21 LED LightBAR powered at 350mA, 7 LED LightBAR powered at 1A.
4. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
5. Extended lead times apply. See website for IES files.
6. Low-level output varies by bar count specified. Consult factory. Not available with 347V or 480V. Requires quantity two or more light bars.
7. Only for use with SL2, SL3 and SL4 distributions. Not available with L90 or R90 options.
8. One required for each light bar. Not available with L90 or R90 options.
9. Requires 7-pin NEMA twistlock photocontrol receptacle.

127 S. DENVER AVENUE
FT. LUPTON, CO 80621
www.westerneci.com
email@westerneci.com
(720) 685-9951
FAX (720) 294-1330
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