CONSTRUCTION PLANS FOR

# 20th Street Roadway Extension

## GREELEY, COLORADO

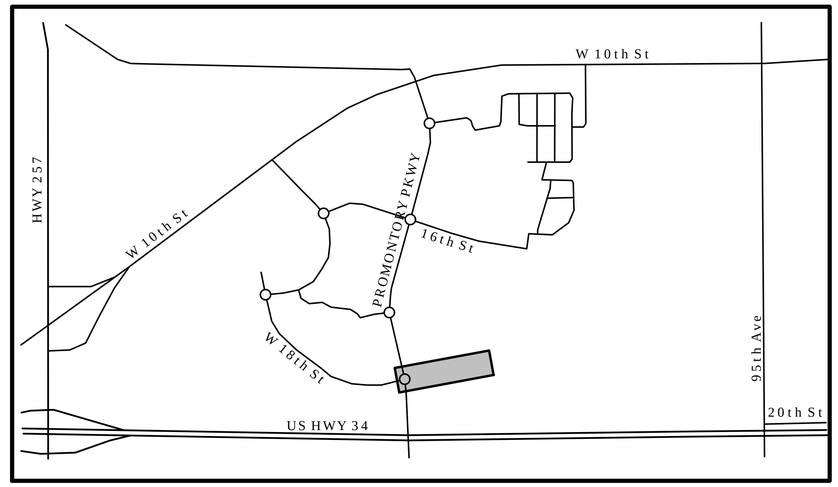
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 12, T5N, R67W OF THE 6TH P.M.
CITY OF GREELEY COUNTY OF WELD, STATE OF COLORADO

## SEPTEMBER 2019

### LEGEND

| | |
|---|---|
| TELE | EXISTING TELEPHONE LINE |
| OHT | EXISTING OVERHEAD TELEPHONE LINE |
| FO | EXISTING FIBER OPTIC LINE |
| CATV | EXISTING CABLE TV LINE |
| ELEC | EXISTING ELECTRIC LINE |
| OHE | EXISTING OVERHEAD ELECTRIC LINE |
| GAS | EXISTING GAS |
| OHU | EXISTING OVERHEAD UTILITY |
| SS | EXISTING SANITARY SEWER MAIN |
| | EXISTING MANHOLE |
| W | EXISTING WATER MAIN |
| | EXISTING WATER VALVE |
| | EXISTING FIRE HYDRANT |
| SD | EXISTING STORM SEWER |
| | EXISTING STORM SEWER INLET |
| | EXISTING FLOWLINE, CURB & GUTTER |
| | EXISTING CONCRETE |
| 42.93 EX | EXISTING SPOT ELEVATION |
| XXXX | EXISTING MINOR CONTOUR |
| XXXX | EXISTING MAJOR CONTOUR |
| | EXISTING UTILITY POLE |
| | EXISTING STREET LIGHT |
| | EXISTING GUY WIRE |
| X | EXISTING FENCE |

| | |
|---|---|
| TELE | PROPOSED TELEPHONE LINE |
| OHT | PROPOSED OVERHEAD TELEPHONE LINE |
| FO | PROPOSED FIBER OPTIC LINE |
| CATV | PROPOSED CABLE TV |
| ELEC | PROPOSED ELECTRIC LINE |
| OHE | PROPOSED OVERHEAD ELECTRIC LINE |
| GAS | PROPOSED GAS |
| OHU | PROPOSED OVERHEAD UTILITY |
| SS | PROPOSED SANITARY SEWER MAIN |
| | PROPOSED MANHOLE |
| W | PROPOSED WATER MAIN |
| | PROPOSED WATER VALVE |
| | PROPOSED FIRE HYDRANT |
| | PROPOSED STORM SEWER |
| | PROPOSED STORM INLET |
| | PROPOSED FLOWLINE, CURB & GUTTER |
| | PROPOSED CONCRETE |
| 42.43 | PROPOSED SPOT ELEVATION |
| XXXX | PROPOSED MINOR CONTOUR |
| XXXX | PROPOSED MAJOR CONTOUR |
| | PROPOSED UTILITY POLE |
| | PROPOSED STREET LIGHT |
| | PROPOSED LIGHT POLES |
| | PROPOSED FENCE |
| WV | PROPOSED WATER SERVICE W / CURB STOP AND METER PIT |
| | PROPOSED SANITARY SEWER SERVICE W / CLEANOUT |
| | PROPOSED DIRECTION OF OVERLAND FLOW |
| | PROPOSED SWALE |
| | LIMITS OF CONSTRUCTION |
| | PROPOSED HANDICAP RAMP |
| | BUILDING ACCESS |




vicinity map

nts

### BENCHMARK:

NGS VERMILYEA 1991
N-1391453.81
E-3176523.23
ELEVATION=5025.84 NAVD 1988 (1995 DATA SHEET)

### CONTROL POINTS:

| CP-CIRCLE | CP-FIRE |
|---|---|
| N-1392736.77 | N-1393160.98 |
| E-3181545.71 | E-3181542.15 |
| ELEV=4931.92 | ELEV=4948.31 |
| SET #4 REBAR WITH | SET #4 REBAR WITH |
| 2" ALUMINUM CAP KSI | 2" ALUMINUM CAP KSI |

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### ABBREVIATION LIST

| | |
|---|---|
| AD | ALGEBRAIC DIFFERENCE |
| AE | ACCESS EASEMENT |
| ARCH | ARCHITECT |
| ARV | AIR RELEASE VALVE |
| ASPH | ASPHALT |
| BLDG | BUILDING |
| BOV | BLOW OFF VALVE |
| BOS | BOTTOM OF STEP |
| BOW | BACK OF WALK |
| BW | BOTTOM OF WALL |
| C&G | CURB & GUTTER |
| CATV | CABLE TELEVISION |
| CL | CENTERLINE |
| CMP | CORRUGATED METAL PIPE |
| CO | CLEAN OUT |
| CoFC | CITY OF FORT COLLINS |
| COMM | COMMUNICATION |
| CON | CONDENSATE |
| CONC | CONCRETE |
| COORD | COORDINATION |
| CW | CHILL WATER |
| CWR | CHILL WATER RETURN |
| CWS | CHILL WATER SUPPLY |
| DE | DRAINAGE EASEMENT |
| DEMO | DEMOLITION |
| DIA | DIAMETER |
| DIP | DUCTILE IRON PIPE |
| E | EAST(ING) |
| EAE | EMERGENCY ACCESS EASEMENT |
| EG | EXISTING GROUND |
| EL | ELEVATION |
| ELEC | ELECTRIC |
| EOA | EDGE OF ASPHALT |
| EOC | EDGE OF CONCRETE |
| EX | EXISTING |
| ESMT | EASEMENT |
| EST | ESTIMATE(D) |
| F | FIRE LINE |
| FDC | FIRE DEPARTMENT CONNECTION |
| FES | FLARED END SECTION |
| FF | FINISHED FLOOR |
| FFE | FINISHED FLOOR ELEVATION |
| FG | FINISHED GRADE |
| FH | FIRE HYDRANT |
| FL | FLOWLINE |
| FO | FIBER OPTIC |
| G | GAS |
| GB | GRADE BREAK |
| GF | GARAGE FLOOR |
| GND | GROUND |
| GV | GATE VALVE |
| HORZ | HORIZONTAL |
| HDPE | HIGH DENSITY POLYETHYLENE |
| HP | HIGH POINT |
| HW | HEADWALL |
| IE | IRRIGATION EASEMENT |
| INV | INVERT |
| IRR | IRRIGATION |
| LA | LANDSCAPE (PLAN / ACRH) |
| LF | LINEAR FEET |
| LP | LOW POINT |
| LT | LEFT |
| MAX | MAXIMUM |
| ME | MATCH EXISTING |
| MEP | MECHANICAL, ELECTRICAL, PLUMBING ENGINEER |
| MH | MANHOLE |
| MIN | MINIMUM |
| N | NORTH(ING) |
| NA | NOT APPLICABLE |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| OHE | OVERHEAD ELECTRIC |
| OHT | OVERHEAD TELEPHONE |
| OHU | OVERHEAD UTILITY |
| P&UE | PEDESTRIAN & UTILITY EASEMENT |
| PE | PEDESTRIAN EASEMENT |
| PERF | PERFORATED |
| PC | POINT OF CURVATURE |
| PCR | POINT OF CURB RETURN |
| PH | POTHOLE |
| PI | POINT OF INTERSECTION |
| PL | PROPERTY LINE |
| PT | POINT OF TANGENCY |
| PVC | POLYVINYL CHLORIDE |
| R&R | REMOVAL & REPLACEMENT |
| RCP | REINFORCED CONCRETE PIPE |
| RD | ROOF DRAIN |
| RE | REFERENCE |
| RJ | RESTRAINT JOINT |
| ROW | RIGHT-OF-WAY |
| RT | RIGHT |
| SCH | SCHEDULE |
| S | SOUTH |
| SD | STORM DRAIN PIPE |
| SDMH | STORM DRAIN MANHOLE |
| SRVC | SERVICE |
| SS | SANITARY SEWER |
| SSCO | SANITARY SEWER CLEAN-OUT |
| SSMH | SANITARY SEWER MANHOLE |
| SSWR | SANITARY SEWER |
| STA | STATION |
| STM | STEAM |
| SWMP | STORMWATER MANAGEMENT PLAN |
| T | TELEPHONE |
| TB | THRUST BLOCK |
| TBC | TOP BACK OF CURB |
| TBV | TO BE VACATED |
| TBR | TO BE REMOVED |
| TELE | TELEPHONE |
| TEMP | TEMPORARY |
| TF | TOP OF FOUNDATION |
| TOS | TOP OF STEP |
| TW | TOP OF WALL |
| TYP | TYPICAL |
| XS | CROSS SECTION |
| UD | UNDERDRAIN |
| UE | UTILITY EASEMENT |
| UGE | UNDERGROUND ELECTRIC |
| UTIL | UTILITY |
| VCP | VITRIFIED CLAY PIPE |
| VIF | VERIFY IN FIELD |
| VERT | VERTICAL |
| VPC | VERTICAL POINT OF CURVATURE |
| VPI | VERTICAL POINT OF INTERSECTION |
| VPT | VERTICAL POINT OF TANGENCY |
| W | WATERLINE OR WEST |
| WL | WATERLINE |
| WQCE | WATER QUALITY CONTROL ELEVATION |
| WSE | WATER SURFACE ELEVATION |

### CITY AND UTILITY CONTACTS:

**CITY OF GREELEY**
Engineering
Contact: Brian Ward
Ph. 970.350.9357

Water and Sewer
Contact: Dan Moore
Ph. 970.350.9814

Greeley Fire Department
Contact: Dale Lyman
Ph. 970.350.9511

**NATURAL GAS**
Atmos Energy
Contact: Jerry Adams
Ph. 970.304.2075

**ELECTRIC**
PVREA
Contact: Dispatch
Ph. 970.226.1234

**TELECOM**
Century Link (Qwest)
Contact: Carson Ortega Ph. 970.392.4837

Comcast
Contact: Bill Blair
Ph. 720.490.3891

**Greeley Loveland Irr. Canal**
Contact: Ron Brinkman
Ph. 970.352.0495

# BID SET
## NOT FOR CONSTRUCTION

THESE CONSTRUCTION PLANS FOR THE SITE WERE PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE REQUIREMENTS OF THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS AND THE STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA OF THE CITY OF GREELEY.

ROBERT ALMIRALL
REGISTERED PROFESSIONAL ENGINEER
STATE OF COLORADO NO. 34288
INTERWEST CONSULTING GROUP
(970) 460-8487

CONSTRUCTION MUST BE DONE IN ACCORDANCE WITH APPLICABLE CITY OF GREELEY CONSTRUCTION STANDARDS. THE CITY'S ACCEPTANCE ALLOWS FOR PLAN DISTRIBUTION AND PERMIT APPLICATION. THE CITY'S ACCEPTANCE SHALL NOT RELIEVE THE DESIGN ENGINEER'S RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DESIGN DEFICIENCIES FOR WHICH THE CITY IS HELD HARMLESS.

ACCEPTED BY: _____ CITY ENGINEER _____ DATE

ACCEPTED BY: _____ DIRECTOR OF WATER & SEWER _____ DATE

ACCEPTED BY: _____ CITY OF GREELEY FIRE CHIEF _____ DATE

CALL BEFORE YOU DIG
CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
or 8-1-1
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.


INTERWEST CONSULTING GROUP
1218 W. Ash, Suite A
Windsor, Colorado 80550
Phone: (970) 674-3300
Fax: (970) 674-3303


PREPARED FOR
CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

COVER SHEET

DATE: 09/13/19
SCALE (H): N/A
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00



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## CITY OF GREELEY GENERAL NOTES:

1. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY, OR EASEMENT SHALL CONFORM TO THE CITY OF GREELEY CONSTRUCTION SPECIFICATIONS AND DESIGN STANDARDS.

2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO COMMENCEMENT OF ANY WORK ON THE PROJECT. A PERMIT FROM PUBLIC WORKS DEPARTMENT (970-350-9881) IS REQUIRED FOR ALL CONSTRUCTION IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. A PRE-CONSTRUCTION CONFERENCE SHALL BE HLD WITH CITY REPRESENTATIVES BEFORE A PERMIT WILL BE ISSUED. CALL UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 FOR UTILITY LOCATES AT LEAST 48 HOURS PRIOR TO AN Y EXCAVATION WORK..

3. THE CONTRACTOR SHALL NOTIFY CONSTRUCTION SERVICES (970-350-9358) AT LEAST 24 HOUR PRIOR TO REQUIRED INSPECTION.

4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER/DEVELOPER, AND THE CITY, OF ANY PROBLEMS IN CONFORMING TO THE ACCEPTED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.

5. IT IS THE RESPONSIBILITY OF THE DEVELOPER 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 CITY, THE MODIFICATIONS PROPOSED BY THE DEVELOPER, TO THE ACCEPTED PLANS, INVOLVE SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE DEVELOPER SHALL BE RESPONSIBLE FOR RE-SUBMITTING THE REVISED PLANS TO THE CITY OF GREELEY FOR ACCEPTANCE PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE PROJECT. ANY IMPROVEMENTS NOT CONSTRUCTED IN ACCORDANCE WITH THE ACCEPTED PLANS, OR THE ACCEPTED REVISED PLANS, SHALL BE REMOVED AND RECONSTRUCTED ACCORDING TO THE APPROVED PLAN.

6. 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 CITY 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.

7. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAG PERSONS, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND THE GREELEY SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

8. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL SURVEY MONUMENTS. ANY MONUMENT THAT MUST BE DESTROYED FOR CONSTRUCTION SHALL BE REPLACED. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A LICENSED SURVEYOR PRIOR TO DISTURBING ANY MONUMENTS.

9. 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.

10. A GEOTECHNICAL REPORT HAS BEEN PREPARED BY GROUND ENGINEERING TITLED "GREELEY FIRE STATION #6: ADDENDUM #1, 18th STREET RIGID PAVEMENT THICKNESS" DATED APRIL 12th 2019. FOR THE PROPOSED 20TH STREET EXTENSION FOR RIGHT-OF-WAY GRADING AND PAVING. REFER TO GEOTECHNICAL REPORT FOR ANY REQUIREMENTS EXCEEDING CITY STANDARDS. A FINAL PAVEMENT DESIGN REPORT IS ALSO REQUIRED. THE SOIL INVESTIGATION FOR THIS REPORT SHALL OCCUR AFTER UTILITY CONSTRUCTION AND GRADING FOR STREETS IS COMPLETED TO WITHIN 6" OF ANTICIPATED SUBGRADE. THE FINAL PAVEMENT DESIGN REPORT SHALL BE ACCEPTED BY THE CITY OF GREELEY PRIOR TO ANY NON-STRUCTURAL CONCRETE, PAVEMENT OR SUBGRADE INSTALLATION.

11. ALL CONCRETE SHALL BE CDOT CLASS D.

12. THE CONTRACTOR SHALL RESTRICT WORKING HOURS TO BETWEEN 7:00AM AND 6:00PM ON NORMAL CITY OF GREELEY BUSINESS DAYS UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE CITY.

## CITY OF GREELEY WATER AND SANITARY SEWER GENERAL NOTES:

1. ALL CONSTRUCTION WORK TO BE ACCEPTED BY THE CITY SHALL CONFORM TO THE CITY OF GREELEY CONSTRUCTION SPECIFICATIONS AND DESIGN STANDARDS.

2. ALL OVER LOT GRADING IN THE RIGHT-OF-WAY OR EASEMENT SHALL BE COMPLETED PRIOR TO INSTALLING POTABLE WATER, SANITARY SEWER, OR NON-POTABLE IRRIGATION LINES.

3. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION. CALL UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 OR DIAL 811 FOR UTILITY LOCATES 48 HOURS PRIOR TO ANY EXCAVATION WORK.

4. MAINTAIN A MINIMUM OF TEN (10) FEET HORIZONTAL CLEAR DISTANCE SEPARATION BETWEEN POTABLE WATER MAINS/SERVICES AND SANITARY SEWER OR NON-POTABLE IRRIGATION MAINS/SERVICES. POTABLE WATER MAINS/SERVICES ARE TO BE LOCATED 18-INCHES MINIMUM ABOVE THE SANITARY SEWER OR NON-POTABLE IRRIGATION MAINS/SERVICES. IF FIELD CONDITIONS VARY FROM THOSE SHOWN ON THESE PLANS AND THE SANITARY SEWER OR NON-POTABLE MAINS/SERVICES CANNOT BE LOCATED BELOW THE WATER MAIN OR SERVICE, A CLEAR VERTICAL DISTANCE OF 18-INCHES CANNOT BE MAINTAINED, OR A MINIMUM TEN (10) FOOT HORIZONTAL SEPARATION CANNOT BE ACHIEVED, THE CITY SHALL BE CONTACTED IMMEDIATELY TO REVIEW THE SITUATION.

5. IN ALL INSTANCES WHERE A WATER LINE LOWERING, POTABLE OR NON-POTABLE, IS REQUIRED DUE TO UNFORESEEN FIELD CONDITIONS, A DETAILED DRAWING SHALL BE PROVIDED TO THE CITY FOR ACCEPTANCE PRIOR TO PERFORMING THE WORK.

6. WHERE POTABLE WATER, SANITARY SEWER, AND NON-POTABLE IRRIGATION LINES ARE LOCATED IN COMMON UTILITY EASEMENT AREAS, THERE SHALL BE NO OTHER UTILITIES LOCATED HORIZONTALLY WITHIN 10 FEET OF EITHER LINE EXCEPT AT APPROVED CROSSINGS.

7. CONTRACTOR SHALL NOTIFY THE CITY ONE (1) WEEK PRIOR TO COMMENCING WORK AFTER CITY ACCEPTED CONSTRUCTION DRAWINGS HAVE BEEN DISTRIBUTED AND A PRECONSTRUCTION MEETING HAS BEEN HELD WITH THE CITY.

8. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES TO BE CROSSED BY POTABLE WATER, SANITARY SEWER, OR NON-POTABLE IRRIGATION LINES AT LEAST 24 HOURS PRIOR TO CROSSING TO ENSURE 18" MINIMUM CLEARANCE FOR OPEN CUT CROSSINGS AND 36" MINIMUM CLEARANCE FOR BORED CROSSINGS. HORIZONTAL AND VERTICAL LOCATION OF CROSSED EXISTING UTILITIES SHALL BE RECORDED ON THE AS-CONSTRUCTED RECORD DRAWINGS.

9. SHOULD ANY VARIATIONS BEFORE OR DURING CONSTRUCTION TO THE POTABLE WATER DISTRIBUTION, SANITARY SEWER COLLECTION, OR NON-POTABLE IRRIGATION SYSTEM DESIGNS BE CONSIDERED, NOTICE MUST FIRST BE GIVEN TO THE CITY TO DETERMINE IF IT NEEDS THE ACCEPTANCE BY THE CITY. IF SO, A NEW PLAN SHALL BE DRAWN AND SUBMITTED TO THE CITY FOR ACCEPTANCE BY THE DESIGN ENGINEER 72 HOURS PRIOR TO CONSTRUCTION.

10. FINAL CONSTRUCTION PLANS ARE VALID FOR CONSTRUCTION ONE (1) YEAR FROM THE DATE OF CITY SIGNATURE ACCEPTANCE.

11. ALL POTABLE WATER MAINS, SERVICES, AND HYDRANT LINES SHALL HAVE A MINIMUM COVER OF FIVE (5) FEET AND A MAXIMUM COVER OF SIX (6) FEET UNLESS OTHERWISE INDICATED ON THE ACCEPTED CONSTRUCTION DRAWINGS.

12. ALL NON-POTABLE WATER MAINS AND SERVICES SHALL HAVE A MINIMUM COVER OF THREE AND A HALF (3.5) FEET AND A MAXIMUM COVER OF SIX (6) FEET UNLESS OTHERWISE INDICATED ON THE ACCEPTED CONSTRUCTION DRAWINGS.

13. ALL NEW WATER MAINS SHALL BE BULKHEADED AND TESTED AND APPROVED PRIOR TO CONNECTION TO THE EXISTING WATER SYSTEM. VALVES WHICH PASS TESTING FOR PRESSURE AND LEAKAGE AT THE TIME OF INSTALLATION AND THE TESTING WAS PERFORMED IN THE PRESENCE OF THE CITY MAY BE CONSIDERED AS A BULKHEAD.

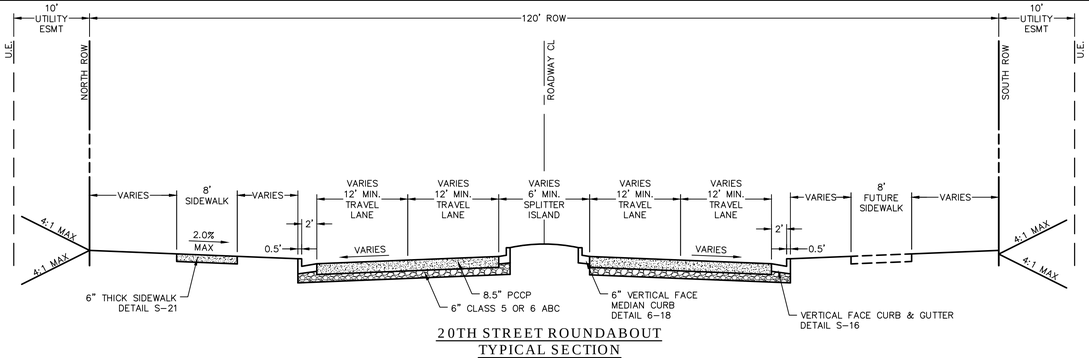
14. VERIFICATION SURVEY – TOP OF PIPE ELEVATIONS AT ALL POTABLE AND NON-POTABLE WATER LINE VALVES, AND SANITARY SEWER MANHOLE INVERTS SHALL BE SURVEYED AND PROVIDED TO THE CITY BY THE DESIGN ENGINEER FOR ACCEPTANCE PRIOR TO PAVING CONSTRUCTION. THE VERIFICATION SURVEY SHALL ALSO PROVIDE SEWER PIPE SLOPES AND LENGTH AND PROPOSED FINISH GROUND ELEVATIONS AT ALL VALVE BOXES AND MANHOLE RIM ELEVATIONS.

15. ALL UTILITY CONDUIT CROSSINGS OF POTABLE WATER, SANITARY SEWER AND NON-POTABLE IRRIGATION LINES SHALL BE ENCASED IN HIGH DENSITY POLYETHYLENE (HDPE) PIPE, WITH A MINIMUM STANDARD DIMENSION RATION (SDR) 11 ACROSS THE ENTIRE EASEMENT OR RIGHT-OF-WAY WIDTH. THE ENCASEMENT JOINT SHALL BE BUTT FUSED. FLEXIBLE JOINTS ARE NOT ALLOWED.

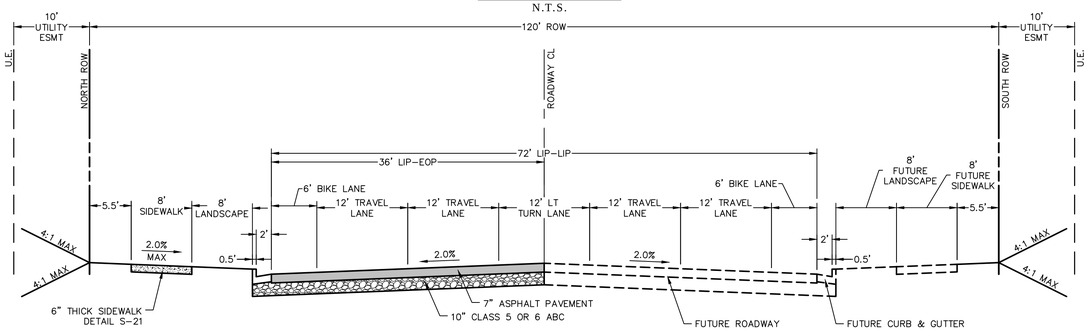
16. WET TAPS SHALL BE DRILLED BY THE CITY FOR A FEE. CALL 970-350-9810 AT LEAST 48 HOURS IN ADVANCE TO PAY FEES AND SCHEDULE TAP.

## UTILITY VERIFICATION SURVEY

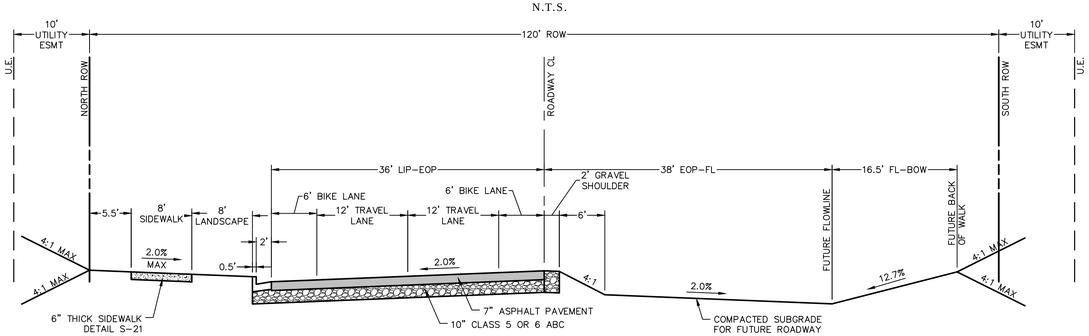
TOP OF NUT ELEVATIONS FOR ALL WATER LINE VALVES, PROPOSED GROUND ELEVATIONS AT THOSE VALVE LOCATIONS, SANITARY SEWER MANHOLES INVERT AND RIM ELEVATIONS, AND SEWER MAIN SLOPES SHALL BE PROVIDED TO THE CITY OF GREELEY ENGINEERING DEVELOPMENT REVIEW DIVISION FOR ACCEPTANCE PRIOR TO PLACEMENT OF CURB/GUTTER/SIDEWALK AND/OR PAVING CONSTRUCTION.




20TH STREET ROUNDABOUT
TYPICAL SECTION
N.T.S.




20TH STREET ULTIMATE
TYPICAL SECTION
N.T.S.




20TH STREET TYPICAL SECTION
N.T.S.

## GRADING AND EROSION CONTROL NOTES:

1. ALL SITE GRADING (EXCAVATION, EMBANKMENT, AND COMPACTION) SHALL CONFORM TO THE RECOMMENDATIONS OF THE LATEST SOILS INVESTIGATION FOR THIS PROJECT AND SHALL FURTHER BE IN CONFORMANCE WITH THE CITY'S STANDARDS AND SPECIFICATIONS.

2. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATION AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME.

3. TOPSOIL SHALL BE STOCKPILED TO THE EXTENT PRACTICABLE ON THE SITE FOR USE IN AREAS TO BE REVEGETATED. ANY AND ALL STOCKPILES SHALL BE LOCATED AND PROTECTED FROM EROSIVE ELEMENTS.

4. TEMPORARY VEGETATION SHALL BE INSTALLED ON ALL DISTURBED AREAS WHERE PERMANENT SURFACE IMPROVEMENTS ARE NOT SCHEDULED FOR INSTALLATION WITHIN THREE MONTHS. VEGETATION SHALL BE A VIGOROUS, DROUGHT TOLERANT NATIVE SPECIES MIX. REFER TO THE TABLE PROVIDED HEREIN FOR DRY LAND SEEDING MIX. PROJECT SCHEDULING SHOULD TAKE ADVANTAGE OF SPRING OR FALL PLANTING SEASONS FOR NATURAL GERMINATION, BUT SEEDED AREAS SHALL BE IRRIGATED, IF CONDITIONS SO MERIT.

5. AT ALL TIMES, THE PROPERTY SHALL BE MAINTAINED AND/OR WATERED TO PREVENT WIND-CAUSED EROSION. EARTHWORK OPERATIONS SHALL BE DISCONTINUED WHEN FUGITIVE DUST SIGNIFICANTLY IMPACTS ADJACENT PROPERTY. IF EARTHWORK IS COMPLETE OR DISCONTINUED AND DUST FROM THE SITE CONTINUES TO CREATE PROBLEMS, THE CONTRACTOR SHALL IMMEDIATELY INSTITUTE MITIGATIVE MEASURES AND SHALL CORRECT DAMAGE TO ADJACENT PROPERTY.

6. THE CONTRACTOR SHALL PROVIDE ADDITIONAL DUST ABATEMENT AND EROSION CONTROL MEASURES DEEMED NECESSARY BY CITY.

7. TEMPORARY FENCES SHALL BE INSTALLED ALONG ALL BOUNDARIES OF THE CONSTRUCTION LIMITS WHICH ARE ADJACENT TO EXISTING IMPROVEMENTS TO PREVENT GRADING ON PROPERTY NOT OWNED BY THE CONTRACTOR. IN ADDITION, THE CITY MAY REQUIRE ADDITIONAL TEMPORARY FENCES IF FIELD CONDITIONS SO MERIT THEM.

8. ALL EROSION PROTECTION SHALL BE PLACED AND APPROVED BY THE CITY PRIOR TO COMMENCEMENT OF SITE GRADING OPERATIONS.

## PAVEMENT DESIGN NOTES:

1. PAVEMENT DESIGN AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE TO "GREELEY FIRE STATION #6: ADDENDUM #1, 18th STREET RIGID PAVEMENT THICKNESS" PREPARED BY GROUND ENGINEERING CONSULTANTS DATED APRIL 12th, 2019.

2. HMA PAVEMENT DESIGN SHALL CONFORM TO MGPEC SPECIFICATIONS ITEM 20, AS WELL AS THE CITY OF GREELEY CONSTRUCTION SPECIFICATIONS.

3. HMA PAVEMENT SHALL BE PLACED IN THREE LIFTS AS FOLLOWS:
   2" GRADE S (75)(PG 64-22)
   2.5" GRADE S (75)(PG 64-22)
   2.5" GRADE S (75)(PG 64-22)

4. ALTERNATE CONCRETE PAVEMENT OPTION SHALL BE 8.5 INCHES OF CONCRETE OVER 6 INCHES OF AGGREGATE BASE TO THE LIMITS SHOWN ON THE PLAN

5. PORTLAND CEMENT CONCRETE PAVEMENT FOR THE ROADWAY SHALL BE CDOT CLASS P WITH A MINIMUM 4,500 PSI COMPRESSIVE STRENGTH.

6. CONCRETE FOR ALL SIDEWALKS AND CURB AND GUTTER SHALL BE CDOT CLASS D WITH A MINIMUM 4,500 PSI COMPRESSIVE STRENGTH.

7. CONCRETE MIX DESIGNS SHALL CONFORM TO MGPEC SPECIFICATIONS ITEM 30 AND 31, AS WELL AS THE CITY OF GREELEY CONSTRUCTION SPECIFICATIONS.

CONSTRUCTION MUST BE DONE IN ACCORDANCE WITH APPLICABLE CITY OF GREELEY CONSTRUCTION STANDARDS. THE CITY'S ACCEPTANCE ALLOWS FOR PLAN DISTRIBUTION AND PERMIT APPLICATION. THE CITY'S ACCEPTANCE SHALL NOT RELIEVE THE DESIGN ENGINEER'S RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DESIGN DEFICIENCIES FOR WHICH THE CITY IS HELD HARMLESS.

ACCEPTED BY: _____ CITY ENGINEER _____ DATE

ACCEPTED BY: _____ DIRECTOR OF WATER & SEWER _____ DATE

ACCEPTED BY: _____ CITY OF GREELEY FIRE CHIEF _____ DATE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INTERWEST CONSULTING GROUP


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ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

GENERAL NOTES & TYPICAL SECTION

DATE: 09/13/19
SCALE (H): N/A
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00



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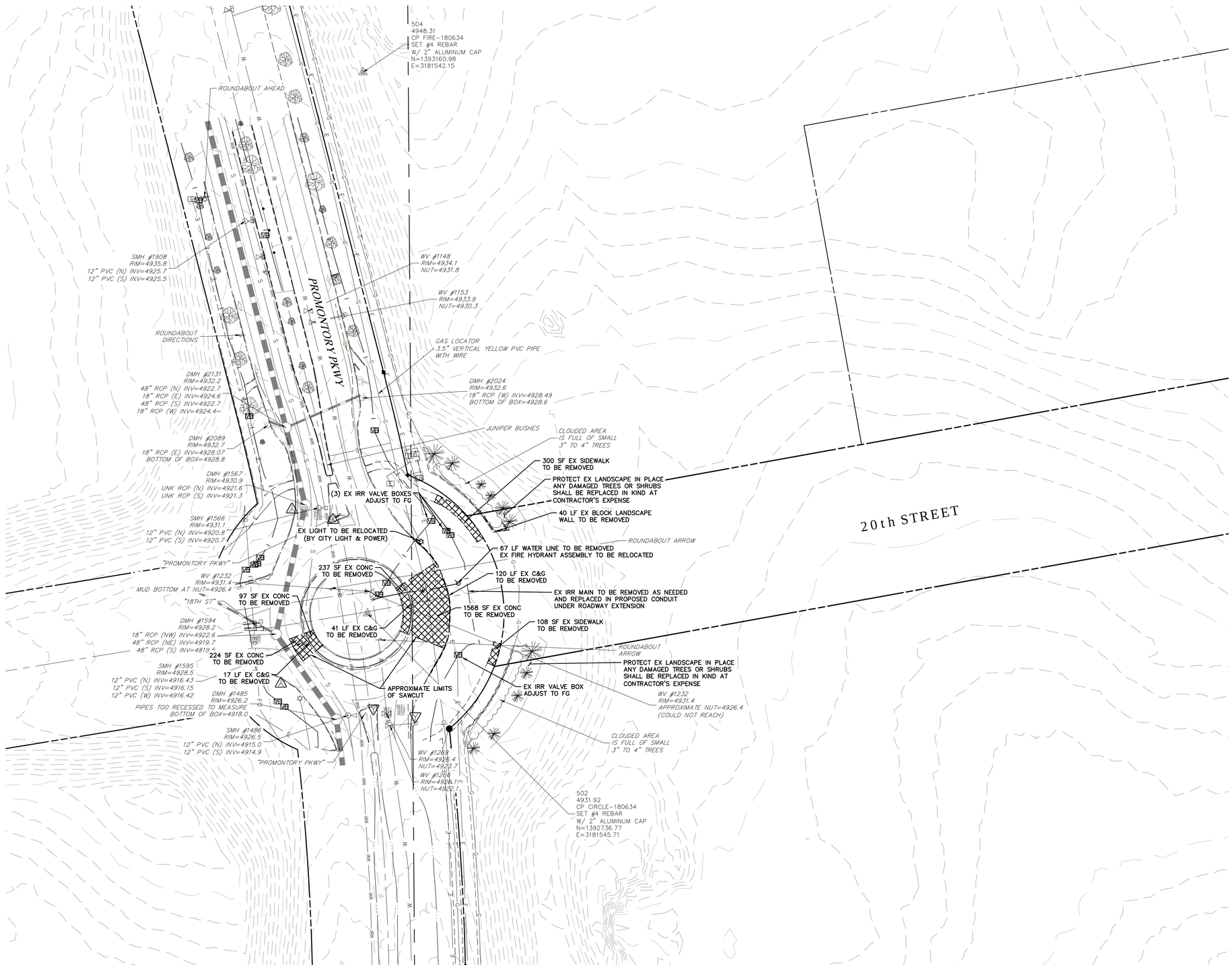


40 20 0 40 80

SCALE: 1" = 40'

NOTES:

1. LIMITS OF SAWCUT SHOWN ARE APPROXIMATE. FINAL LIMITS SHALL BE DETERMINED IN THE FIELD WITH THE CITY INSPECTOR AND SHALL BE TO THE NEAREST CONCRETE PAVEMENT JOINT.

2. IRRIGATION LINES AND VALVE BOXES SHALL BE RELOCATED OR ADJUSTED AS NEEDED IN THE FIELD.

CALL BEFORE YOU DIG

CALL UTILITY NOTIFICATION
CENTER OF COLORADO

1-800-922-1987
or 8-1-1

CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR THE
MARKING OF UNDERGROUND MEMBER UTILITIES.


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INTERWEST


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ENGINEERING DIVISION
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GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME

20TH STREET ROADWAY EXTENSION

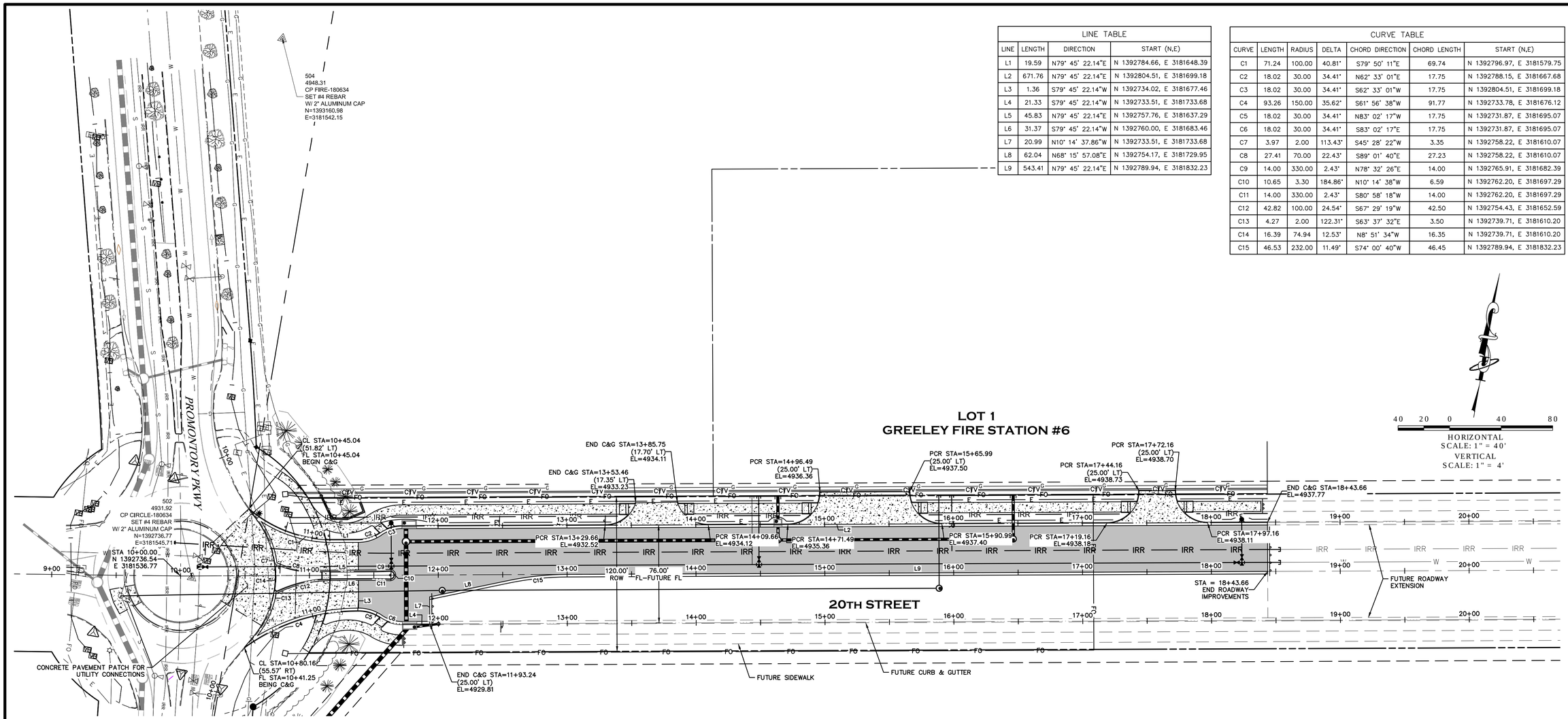
EXISTING CONDITIONS & REMOVAL PLAN

| | |
|---|---|
| DATE: 09/13/19 | |
| SCALE (H): 1"=40' | |
| SCALE (V): N/A | |
| DESIGNED BY: SB | |
| CHECKED BY: RA | |

PROJ. NO. 1392-083-00

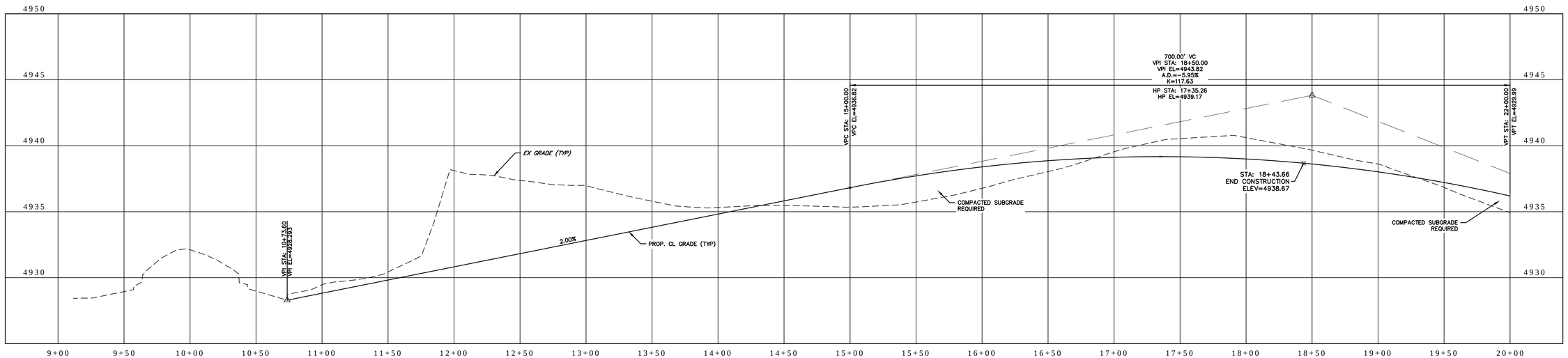
| LINE TABLE | | | |
|---|---|---|---|
| LINE | LENGTH | DIRECTION | START (N,E) |
| L1 | 19.59 | N79° 45' 22.14"E | N 1392784.66, E 3181648.39 |
| L2 | 671.76 | N79° 45' 22.14"E | N 1392804.51, E 3181699.18 |
| L3 | 1.36 | S79° 45' 22.14"W | N 1392734.02, E 3181677.46 |
| L4 | 21.33 | S79° 45' 22.14"W | N 1392733.51, E 3181733.68 |
| L5 | 45.83 | N79° 45' 22.14"E | N 1392757.76, E 3181637.29 |
| L6 | 31.37 | S79° 45' 22.14"W | N 1392760.00, E 3181683.46 |
| L7 | 20.99 | N10° 14' 37.86"W | N 1392733.51, E 3181733.68 |
| L8 | 62.04 | N68° 15' 57.08"E | N 1392754.17, E 3181729.95 |
| L9 | 543.41 | N79° 45' 22.14"E | N 1392789.94, E 3181832.23 |

| CURVE TABLE | | | | | | |
|---|---|---|---|---|---|---|
| CURVE | LENGTH | RADIUS | DELTA | CHORD DIRECTION | CHORD LENGTH | START (N,E) |
| C1 | 71.24 | 100.00 | 40.81° | S79° 50' 11"E | 69.74 | N 1392796.97, E 3181579.75 |
| C2 | 18.02 | 30.00 | 34.41° | N62° 33' 01"E | 17.75 | N 1392788.15, E 3181667.68 |
| C3 | 18.02 | 30.00 | 34.41° | S62° 33' 01"W | 17.75 | N 1392804.51, E 3181699.18 |
| C4 | 93.26 | 150.00 | 35.62° | S61° 56' 38"W | 91.77 | N 1392733.78, E 3181676.12 |
| C5 | 18.02 | 30.00 | 34.41° | N83° 02' 17"W | 17.75 | N 1392731.87, E 3181695.07 |
| C6 | 18.02 | 30.00 | 34.41° | S83° 02' 17"E | 17.75 | N 1392731.87, E 3181695.07 |
| C7 | 3.97 | 2.00 | 113.43° | S45° 28' 22"W | 3.35 | N 1392758.22, E 3181610.07 |
| C8 | 27.41 | 70.00 | 22.43° | S89° 01' 40"E | 27.23 | N 1392758.22, E 3181610.07 |
| C9 | 14.00 | 330.00 | 2.43° | N78° 32' 26"E | 14.00 | N 1392765.91, E 3181682.39 |
| C10 | 10.65 | 3.30 | 184.86° | N10° 14' 38"W | 6.59 | N 1392762.20, E 3181697.29 |
| C11 | 14.00 | 330.00 | 2.43° | S80° 58' 18"W | 14.00 | N 1392762.20, E 3181697.29 |
| C12 | 42.82 | 100.00 | 24.54° | S67° 29' 19"W | 42.50 | N 1392754.43, E 3181652.59 |
| C13 | 4.27 | 2.00 | 122.31° | S63° 37' 32"E | 3.50 | N 1392739.71, E 3181610.20 |
| C14 | 16.39 | 74.94 | 12.53° | N8° 51' 34"W | 16.35 | N 1392739.71, E 3181610.20 |
| C15 | 46.53 | 232.00 | 11.49° | S74° 00' 40"W | 46.45 | N 1392789.94, E 3181832.23 |




40 20 0 40 80

HORIZONTAL
SCALE: 1" = 40'
VERTICAL
SCALE: 1" = 4'




20th STREET CENTERLINE PROFILE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INTERWEST CONSULTING GROUP


PREPARED FOR

CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

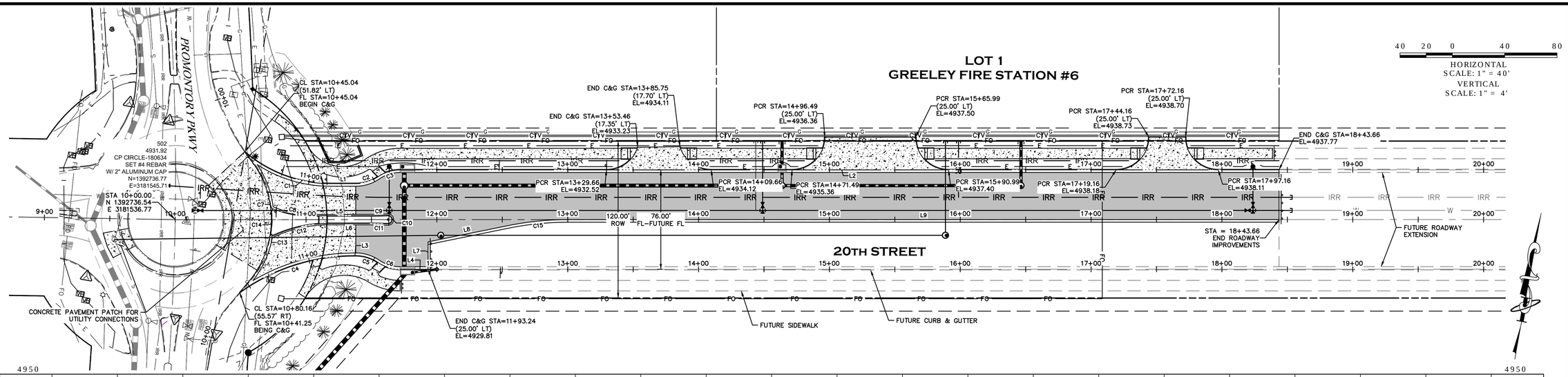
PROJECT NAME

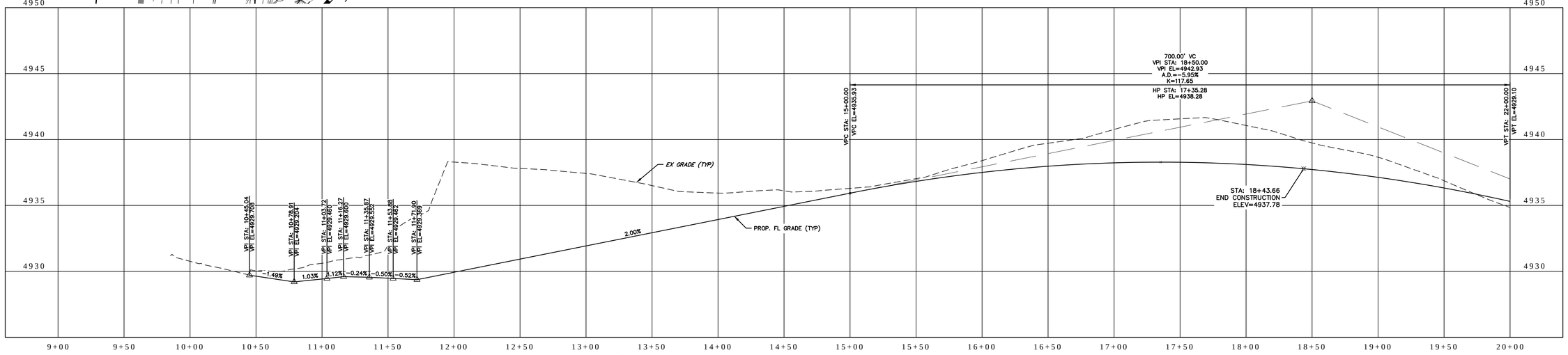
20TH STREET ROADWAY EXTENSION

20TH STREET PLAN & CENTERLINE PROFILE

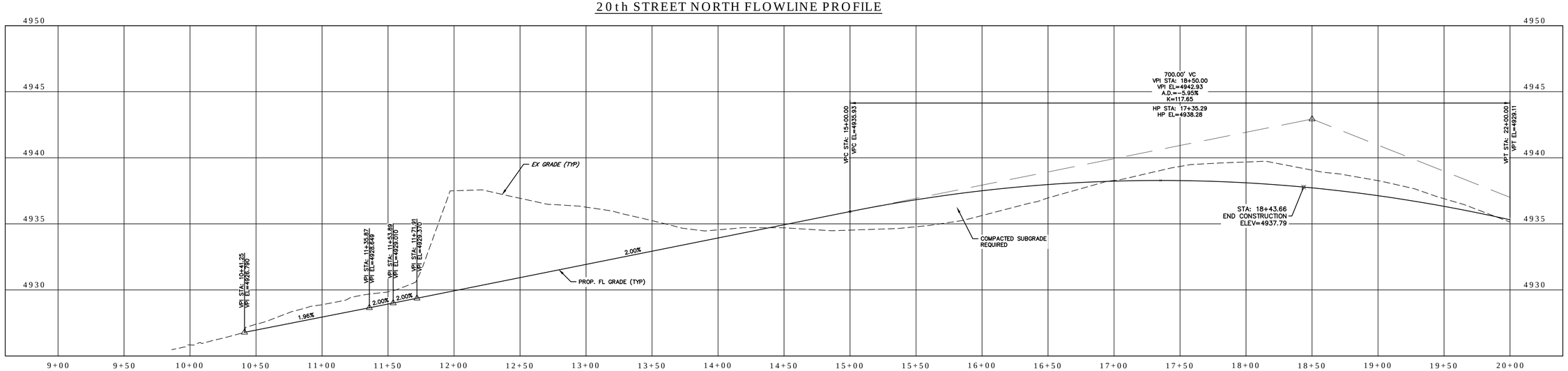
DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




20th STREET NORTH FLOWLINE PROFILE




20th STREET FUTURE SOUTH FLOWLINE PROFILE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GREELEY CO 80631
PHONE: 970-350-9794

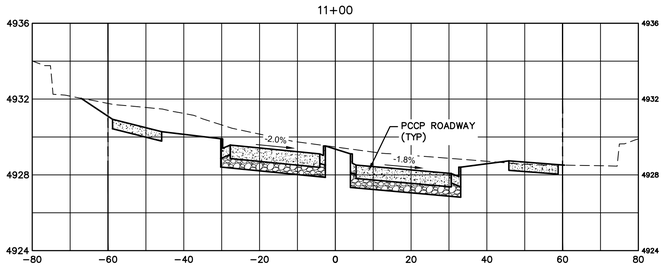
PROJECT NAME

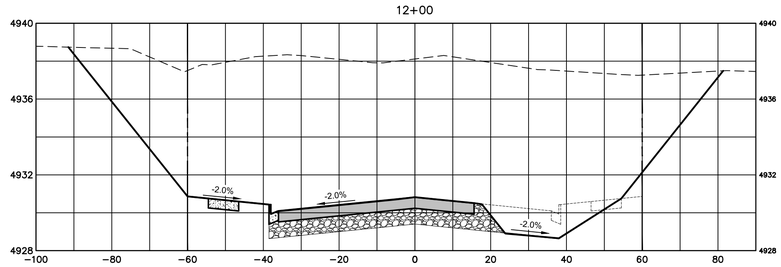
20TH STREET ROADWAY EXTENSION

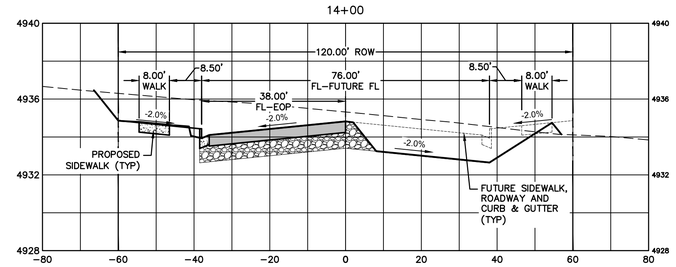
20TH STREET PLAN & FLOWLINE PROFILE

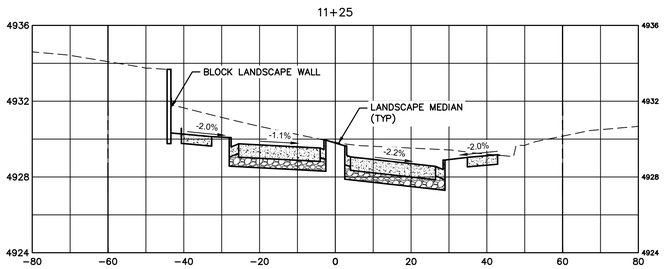
| | |
|---|---|
| DATE: 09/13/19 | |
| SCALE (H): 1"=40' | |
| SCALE (V): 1"=4' | |
| DESIGNED BY: SB | |
| CHECKED BY: RA | |

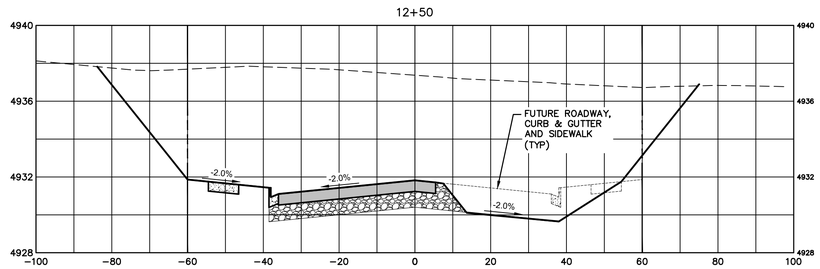
PROJ. NO. 1392-083-00

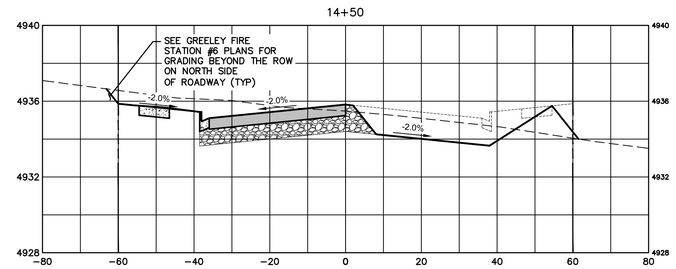


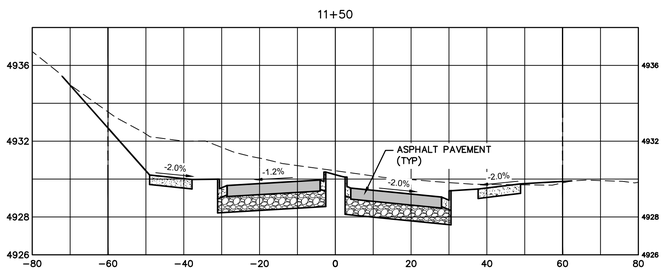



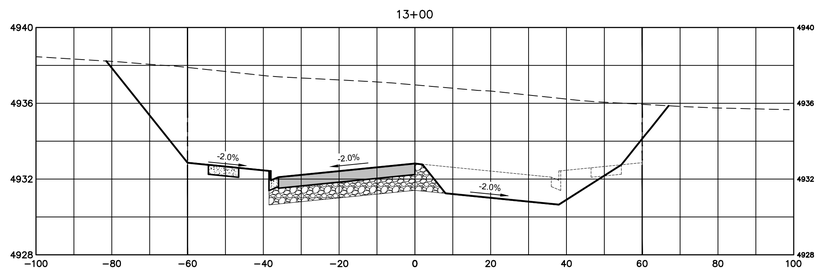



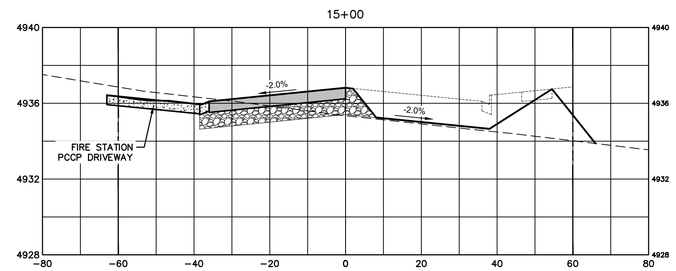



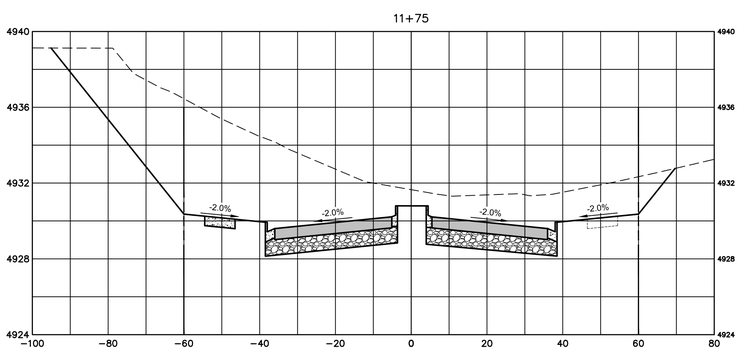



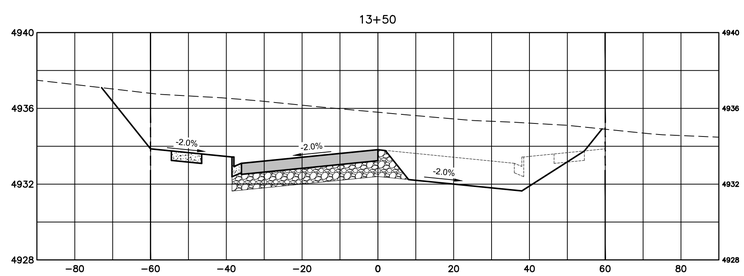



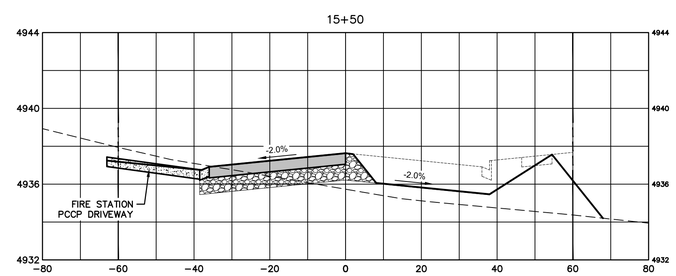




20 10 0 20 40

HORIZONTAL
SCALE: 1" = 20'
VERTICAL
SCALE: 1" = 4'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INTERWEST


PREPARED FOR

CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME

# 20TH STREET ROADWAY EXTENSION

## 20TH STREET CROSS SECTIONS

DATE: 09/13/19
SCALE (H): 1"=20'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00



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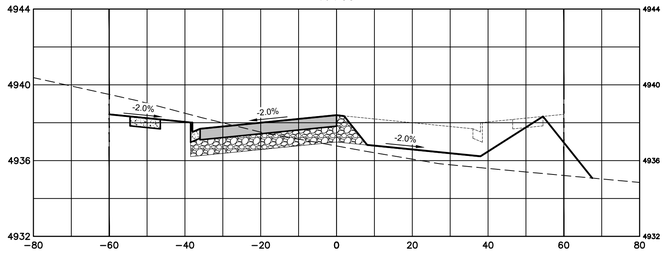
16+00

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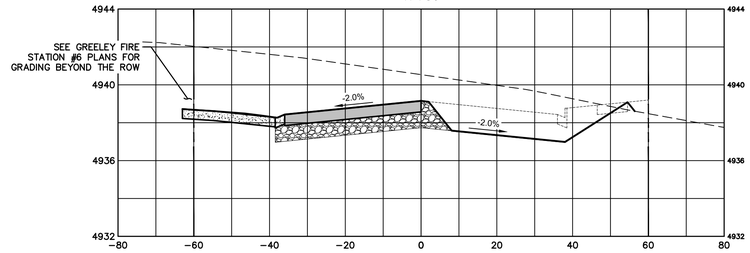


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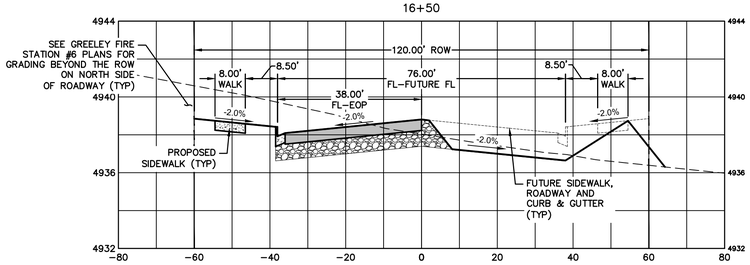


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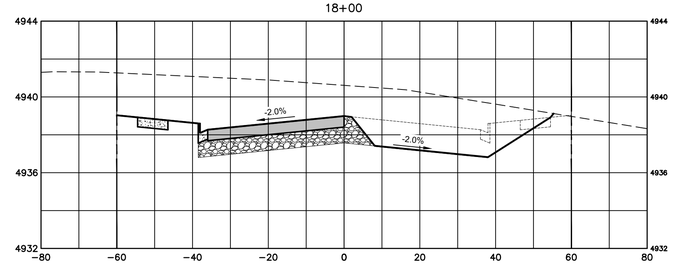


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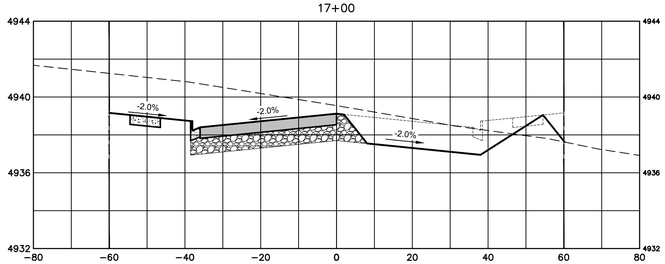


20 10 0 20 40

HORIZONTAL
SCALE: 1" = 20'
VERTICAL
SCALE: 1" = 4'


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PREPARED FOR

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ENGINEERING DIVISION
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GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME

20TH STREET ROADWAY EXTENSION

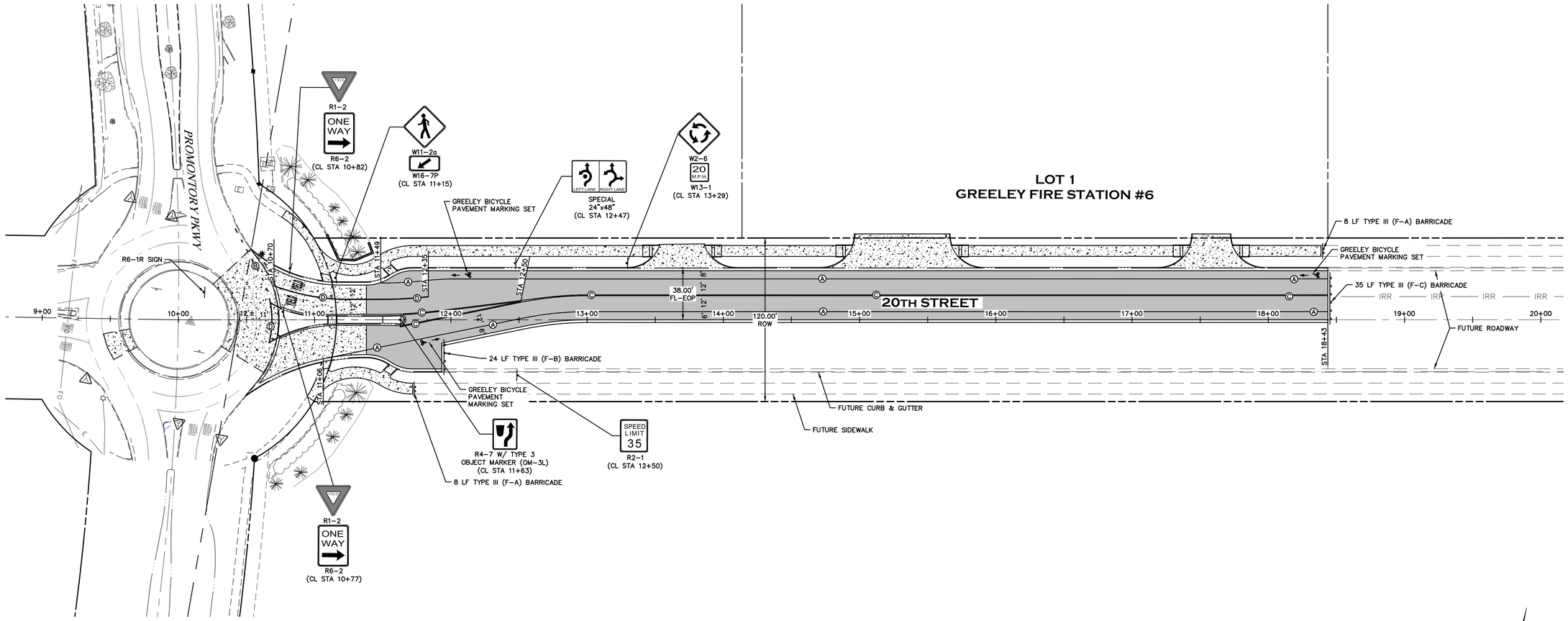
20TH STREET CROSS SECTIONS

DATE: 09/13/19
SCALE (H): 1"=20'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00



X:\INTERWEST PROJECTS\2019 PROJECTS\1392-083-00 (GREELEY FIRE STATION OFFSITE)\DRAWINGS\ENGINEERING PLANS\392-083-00_XSECWL.DWG, 9/13/2019 3:27 PM




## STRIPING LEGEND

- Ⓐ 4" SOLID WHITE
- Ⓑ 8" WHITE DASH – 2' LONG W/ 4' GAP
- Ⓒ 4" SOLID DOUBLE YELLOW
- Ⓓ 8" SOLID WHITE

**NOTES:**

1. ALL PAVEMENT MARKINGS TO BE DONE IN ACCORDANCE WITH CITY OF GREELEY AND/OR MUTCD STANDARDS.
2. DIMENSIONS SHOWN FOR STRIPING ARE FROM FLOWLINE OF CURB TO CENTER OF STRIPE OR CENTER OF STRIPE TO CENTER OF STRIPE.
3. RECESS ALL GREELEY BICYCLE PAVEMENT MARKING SET FLUSH.
4. THE EDGES OF ALL SIGN PANELS SHALL BE 24" MINIMUM FROM CURB FACE.
5. ALL SIGNS SHALL MEET THE MOST CURRENT MUTCD STANDARDS.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GREELEY CO 80631
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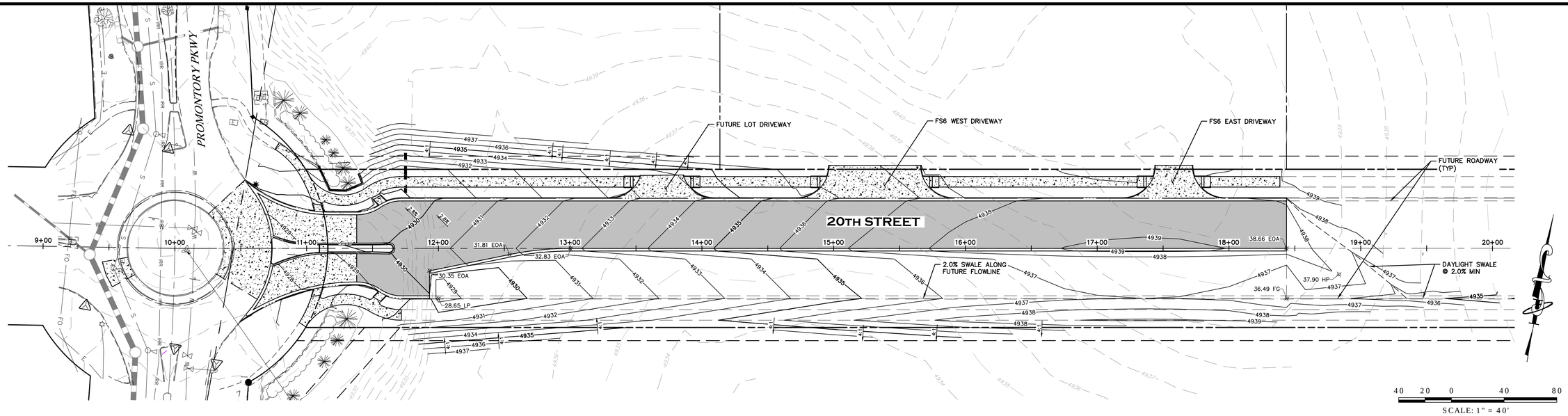
PROJECT NAME
20TH STREET ROADWAY EXTENSION

SIGNING & STRIPING PLAN

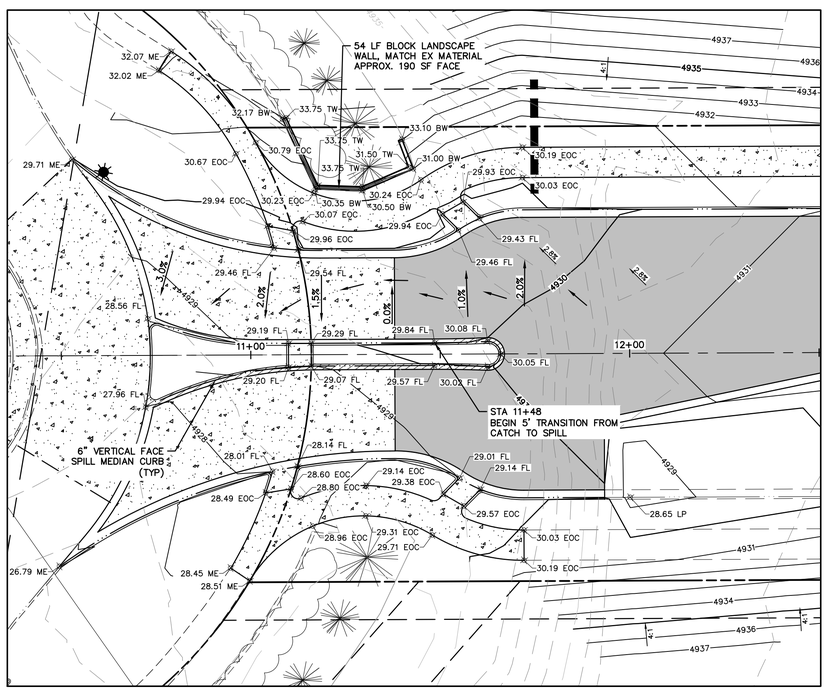
DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00

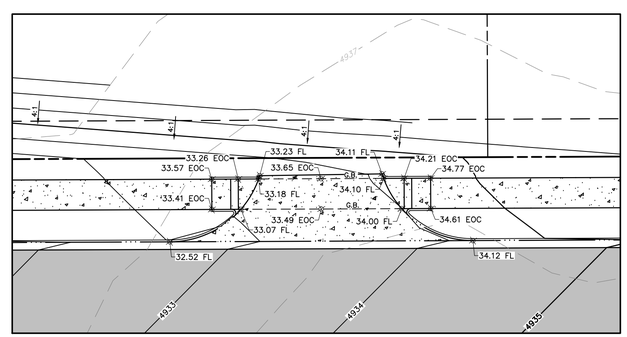



## ABBREVIATION LIST

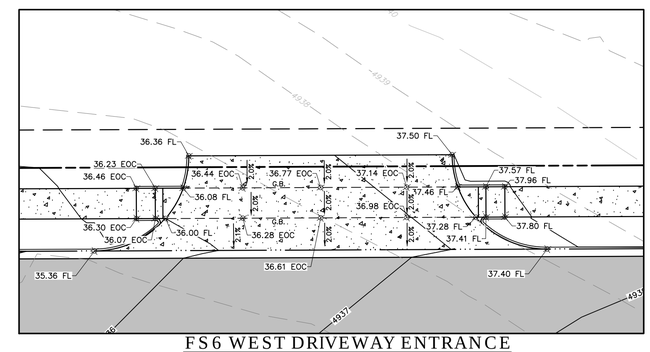
| | |
|---|---|
| BW | BOTTOM OF WALL |
| EOA | EDGE OF ASPHALT |
| EOC | EDGE OF CONCRETE |
| EG | EXISTING GROUND |
| FG | FINISH GRADE |
| FL | FLOWLINE |
| GB | GRADE BREAK |
| HP | HIGH POINT |
| LP | LOW POINT |
| ME | MATCH EXISTING |
| TW | TOP OF WALL |



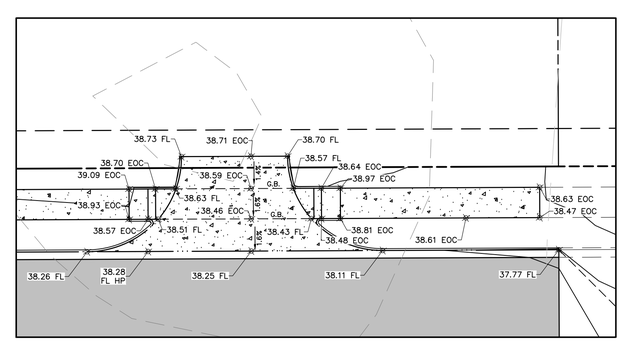

ROUNDABOUT BLOW UP GRADING PLAN
SCALE: 1"=20'



FUTURE LOT DRIVEWAY ENTRANCE GRADING PLAN
SCALE: 1"=20'



FS6 WEST DRIVEWAY ENTRANCE GRADING PLAN
SCALE: 1"=20'



FS6 EAST DRIVEWAY ENTRANCE GRADING PLAN
SCALE: 1"=20'


1218 W. Ash, Suite A
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Fax: (970) 674-3303
INTERWEST CONSULTING GROUP

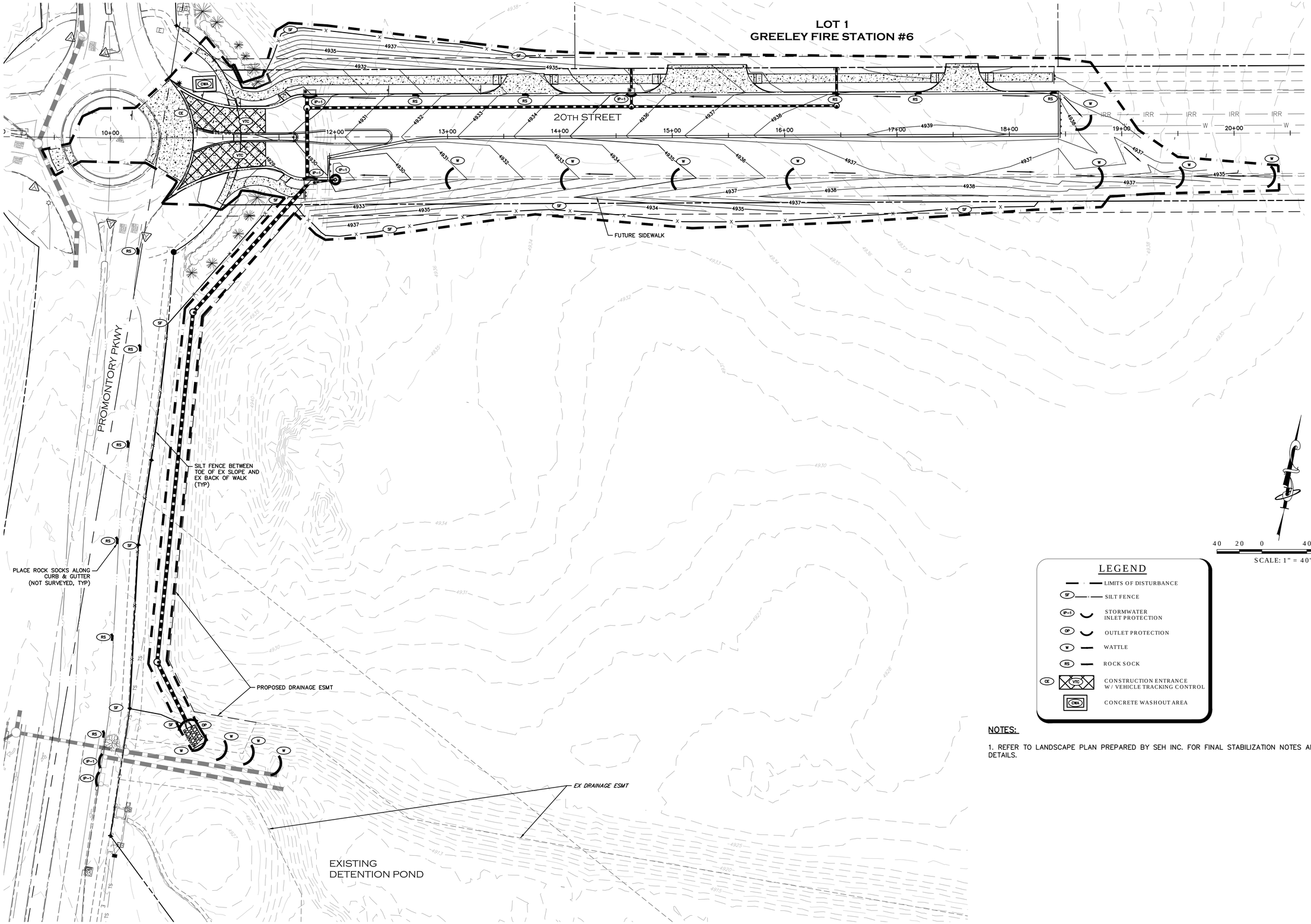

PREPARED FOR
CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

GRADING PLAN

DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




## LEGEND

- LIMITS OF DISTURBANCE
- SF — SILT FENCE
- IP-1 — STORMWATER INLET PROTECTION
- OP — OUTLET PROTECTION
- W — WATTLE
- RS — ROCK SOCK
- CE / VTC — CONSTRUCTION ENTRANCE W/ VEHICLE TRACKING CONTROL
- CWA — CONCRETE WASHOUT AREA

**NOTES:**

1. REFER TO LANDSCAPE PLAN PREPARED BY SEH INC. FOR FINAL STABILIZATION NOTES AND DETAILS.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PHONE: 970-350-9794

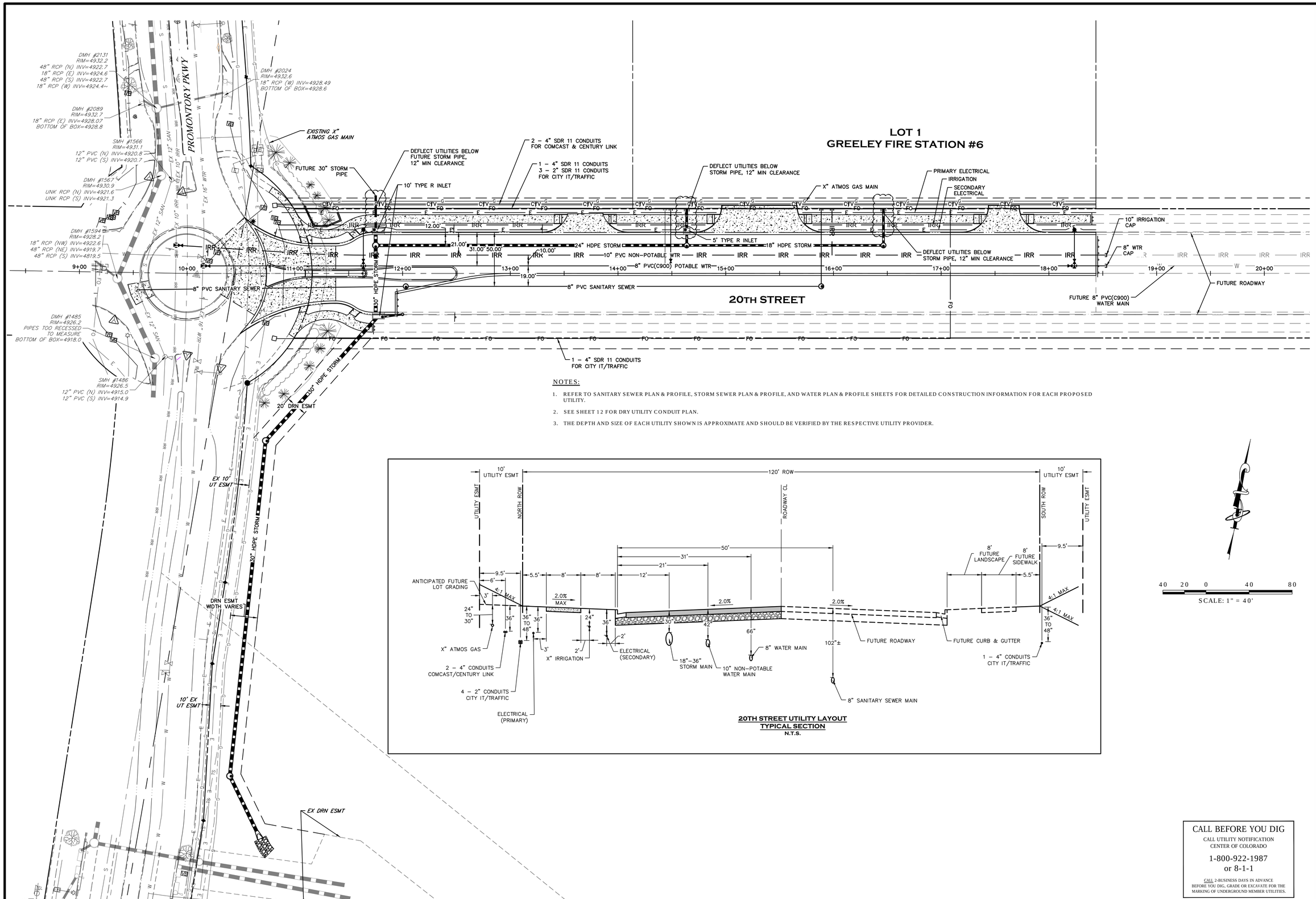
PROJECT NAME

20TH STREET ROADWAY EXTENSION

EROSION CONTROL PLAN

DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




NOTES:

1. REFER TO SANITARY SEWER PLAN & PROFILE, STORM SEWER PLAN & PROFILE, AND WATER PLAN & PROFILE SHEETS FOR DETAILED CONSTRUCTION INFORMATION FOR EACH PROPOSED UTILITY.
2. SEE SHEET 12 FOR DRY UTILITY CONDUIT PLAN.
3. THE DEPTH AND SIZE OF EACH UTILITY SHOWN IS APPROXIMATE AND SHOULD BE VERIFIED BY THE RESPECTIVE UTILITY PROVIDER.




**20TH STREET UTILITY LAYOUT**
**TYPICAL SECTION**
**N.T.S.**




CALL BEFORE YOU DIG
CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
or 8-1-1
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.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ENGINEERING DIVISION
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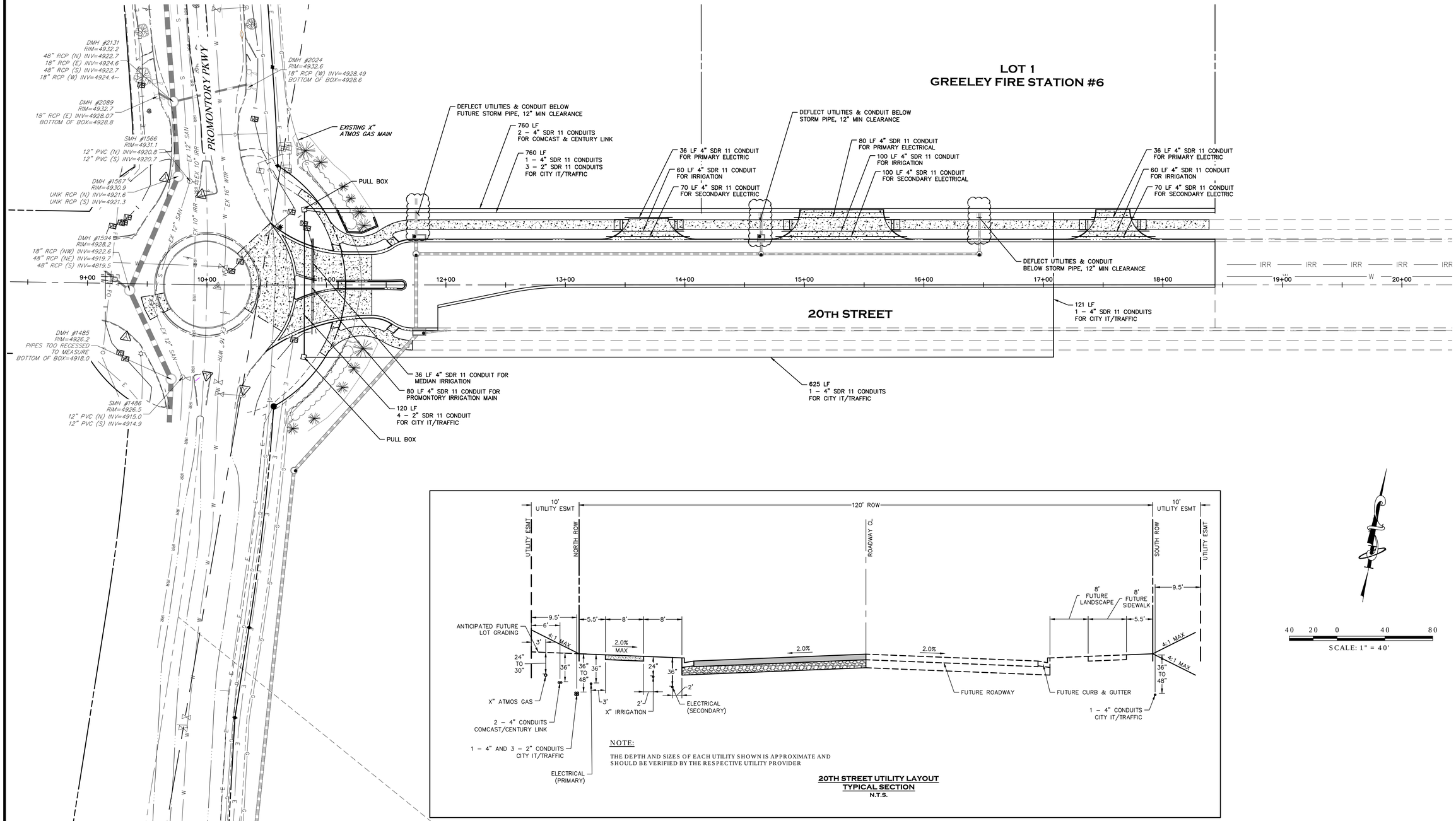
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

OVERALL UTILITY PLAN

DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00







NOTE:

THE DEPTH AND SIZES OF EACH UTILITY SHOWN IS APPROXIMATE AND SHOULD BE VERIFIED BY THE RESPECTIVE UTILITY PROVIDER

**20TH STREET UTILITY LAYOUT**
**TYPICAL SECTION**
**N.T.S.**

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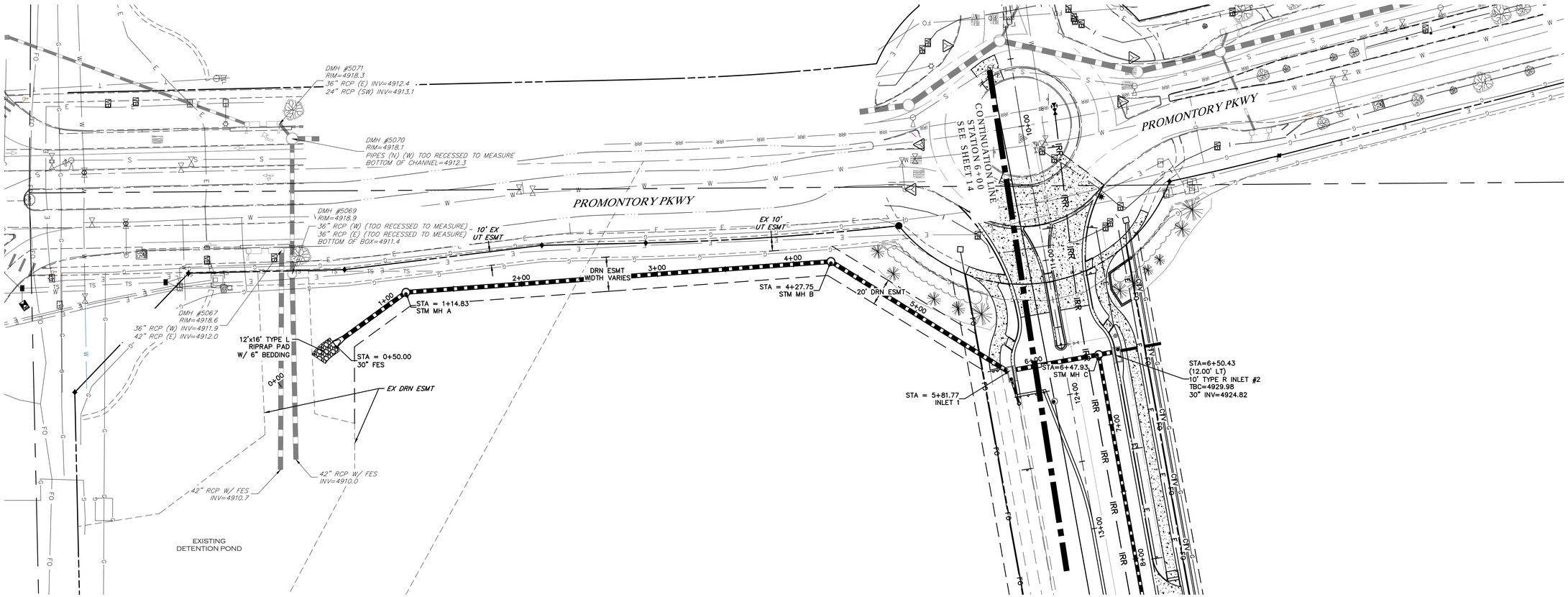
PHONE: 970-350-9794

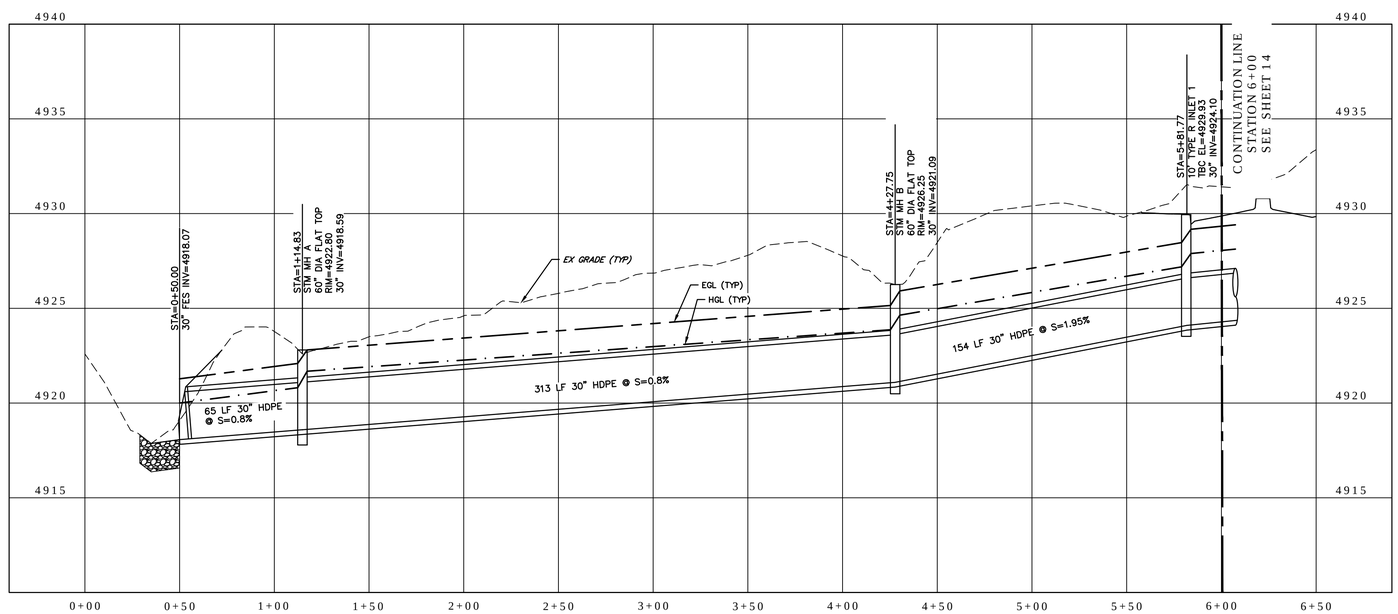
PROJECT NAME
20TH STREET ROADWAY EXTENSION

CONDUIT PLAN

DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




STORM LINE PROFILE STA 0+00 TO 6+00

40 20 0 40 80

HORIZONTAL
SCALE: 1" = 40'
VERTICAL
SCALE: 1" = 4'

## NOTES:

1. ALL STORM CONSTRUCTION SHALL BE PER CITY OF GREELEY STANDARDS AND SPECIFICATIONS.
2. ALL STORM PIPE TO BE HIGH DENSITY POLYETHYLENE PIPE (HDPE) WITH RUBBER WATER-TIGHT JOINTS UNLESS OTHERWISE NOTED ON THE PLANS.
3. PIPE BEDDING FOR HDPE PIPE SHALL CONFORM TO CITY OF GREELEY STANDARD DETAIL 6-6 INCLUDED IN THIS PLAN SET.
4. LENGTH OF PIPE IS MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
5. LENGTH OF PIPE INCLUDES FLARED END SECTION (FES).

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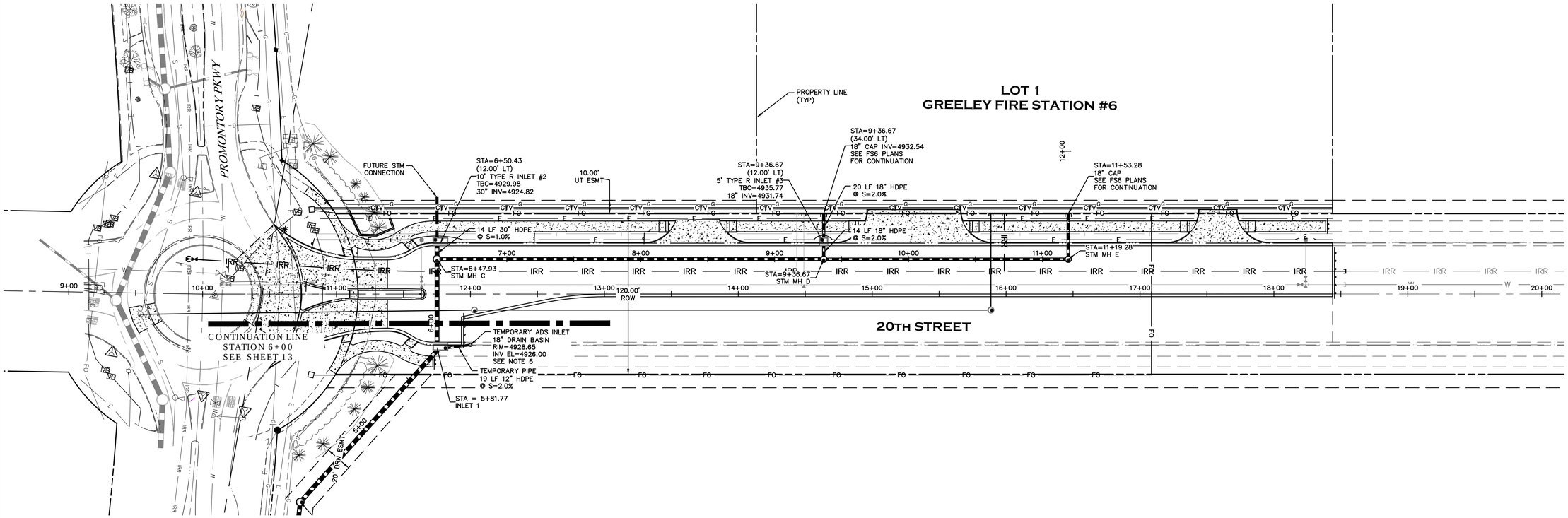
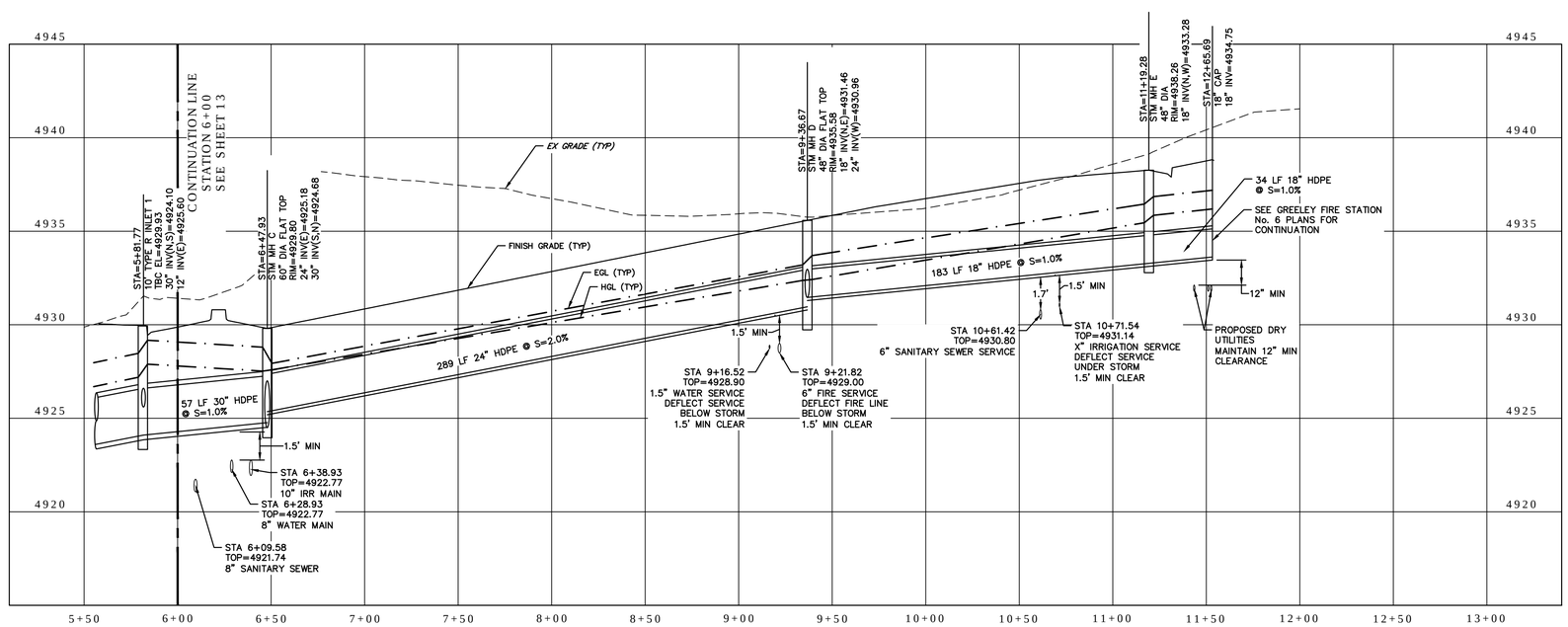
PROJECT NAME
20TH STREET ROADWAY EXTENSION

STORM PLAN & PROFILE

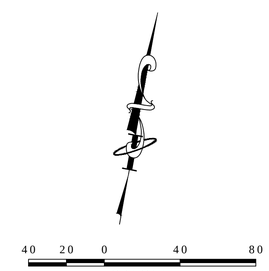
DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




STORM PROFILE STA 6+00 - 12+50




## NOTES:

1. ALL STORM CONSTRUCTION SHALL BE PER CITY OF GREELEY STANDARDS AND SPECIFICATIONS.
2. ALL STORM PIPE TO BE HIGH DENSITY POLYETHYLENE PIPE (HDPE) WITH RUBBER WATER-TIGHT JOINTS UNLESS OTHERWISE NOTED ON THE PLANS.
3. PIPE BEDDING FOR HDPE PIPE SHALL CONFORM TO CITY OF GREELEY STANDARD DETAIL 6-6 INCLUDED IN THIS PLAN SET.
4. LENGTH OF PIPE IS MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
5. LENGTH OF PIPE INCLUDES FLARED END SECTION (FES).
6. TEMPORARY DRAIN BASIN AND 12" PIPE CONNECTION TO BE REMOVED WHEN SOUTH HALF OF ROADWAY IS PAVED.

CALL BEFORE YOU DIG
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1-800-922-1987
or 8-1-1
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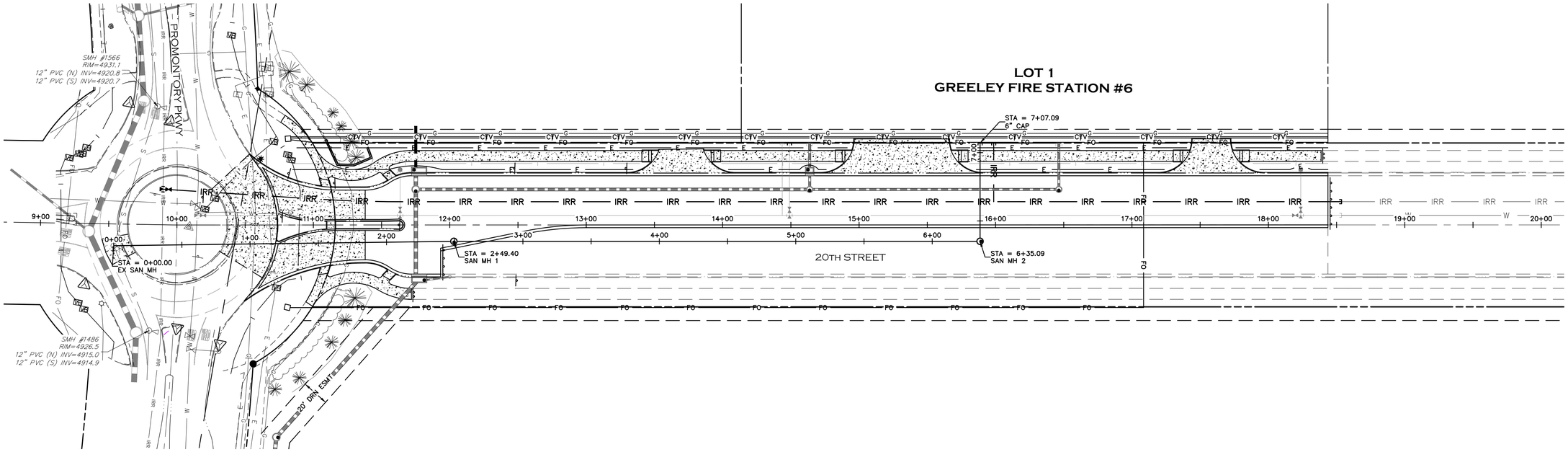
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

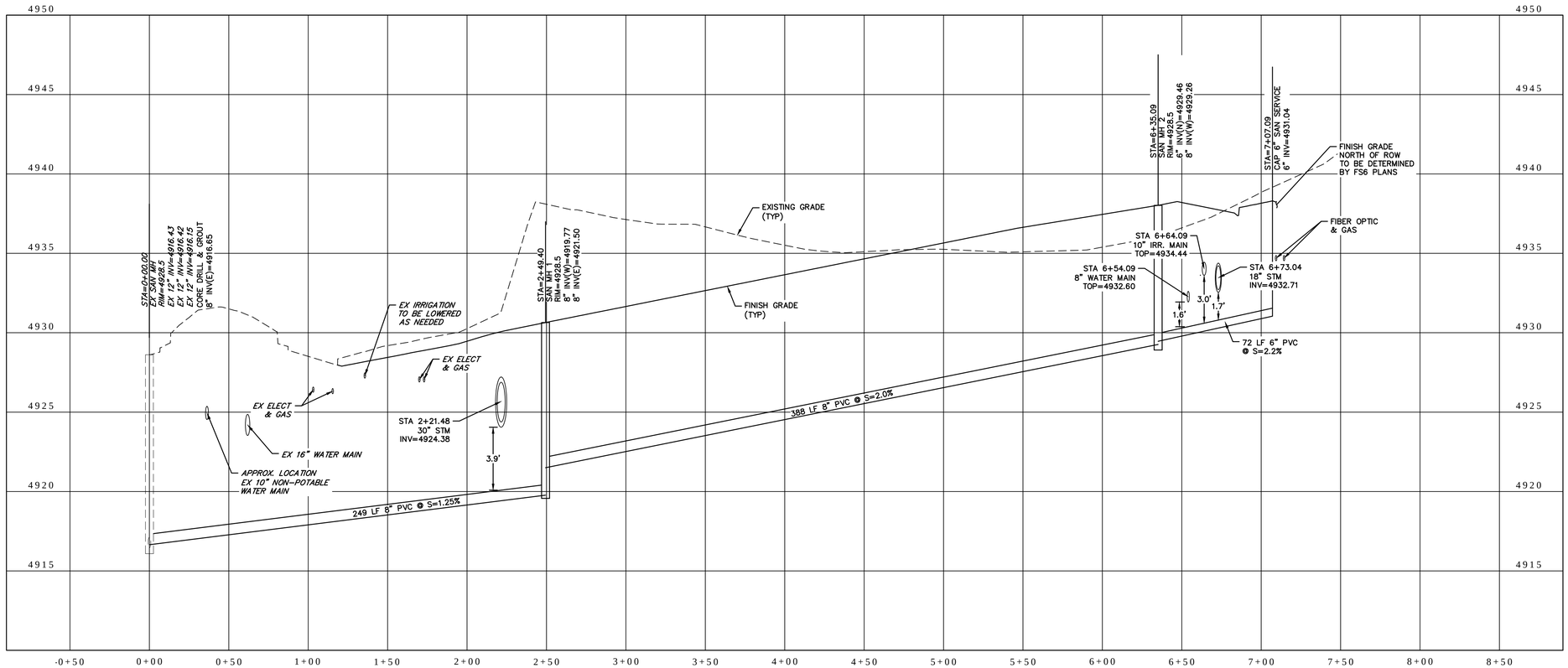
PROJECT NAME
20TH STREET ROADWAY EXTENSION

STORM PLAN & PROFILE

DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




SANITARY SEWER PROFILE

40 20 0 40 80

HORIZONTAL
SCALE: 1" = 40'
VERTICAL
SCALE: 1" = 4'

NOTES:

1. ALL SANITARY SEWER CONSTRUCTION SHALL BE PER THE CITY OF GREELEY STANDARD SPECIFICATIONS.
2. SANITARY SEWER PIPE SHALL BE SDR 35 PVC.
3. LENGTH OF PIPE IS MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
4. CONTRACTOR TO VERIFY LOCATION AND ELEVATIONS OF EXISTING UTILITIES.

CALL BEFORE YOU DIG
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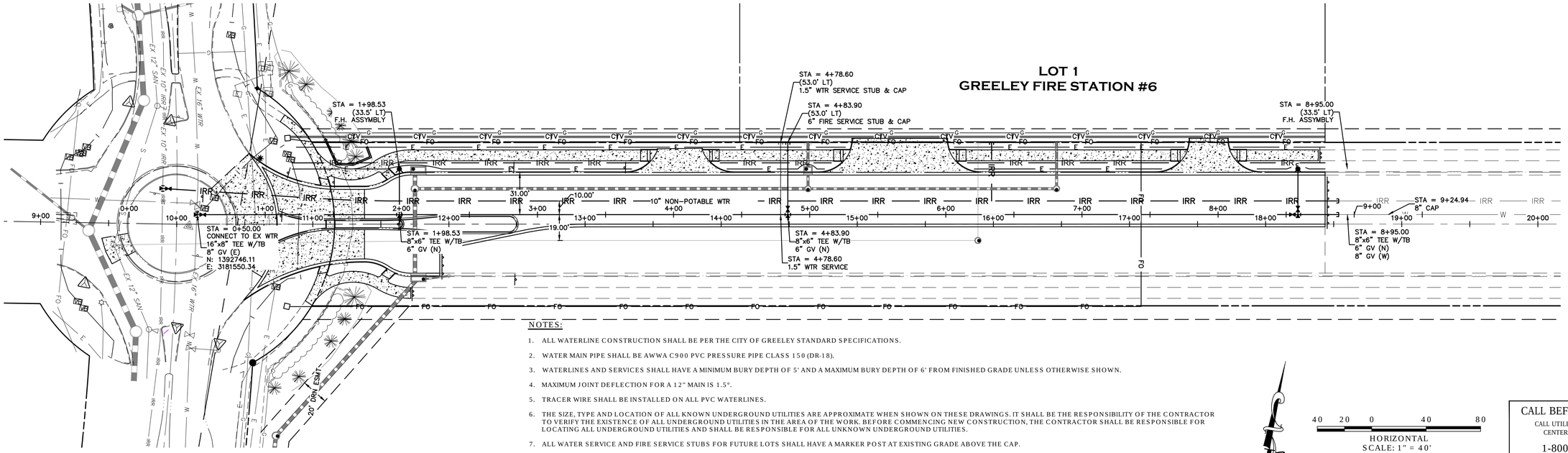
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

SANITARY SEWER PLAN & PROFILE

DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




NOTES:

1. ALL WATERLINE CONSTRUCTION SHALL BE PER THE CITY OF GREELEY STANDARD SPECIFICATIONS.
2. WATER MAIN PIPE SHALL BE AWWA C900 PVC PRESSURE PIPE CLASS 150 (DR-18).
3. WATERLINES AND SERVICES SHALL HAVE A MINIMUM BURY DEPTH OF 5' AND A MAXIMUM BURY DEPTH OF 6' FROM FINISHED GRADE UNLESS OTHERWISE SHOWN.
4. MAXIMUM JOINT DEFLECTION FOR A 12" MAIN IS 1.5°.
5. TRACER WIRE SHALL BE INSTALLED ON ALL PVC WATERLINES.
6. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK. BEFORE COMMENCING NEW CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL UNKNOWN UNDERGROUND UTILITIES.
7. ALL WATER SERVICE AND FIRE SERVICE STUBS FOR FUTURE LOTS SHALL HAVE A MARKER POST AT EXISTING GRADE ABOVE THE CAP.
8. WATER SERVICE LINES SHALL BE TYPE 'K' COPPER.
9. WATER SERVICE CURB STOPS SHALL BE LOCATED ONE FOOT FROM THE PROPERTY LINE OR EASEMENT BOUNDARY.
10. 6" FIRE STUBS SHALL BE RESTRAINED D.I.P.

40 20 0 40 80

HORIZONTAL
SCALE: 1" = 40'
VERTICAL
SCALE: 1" = 4'

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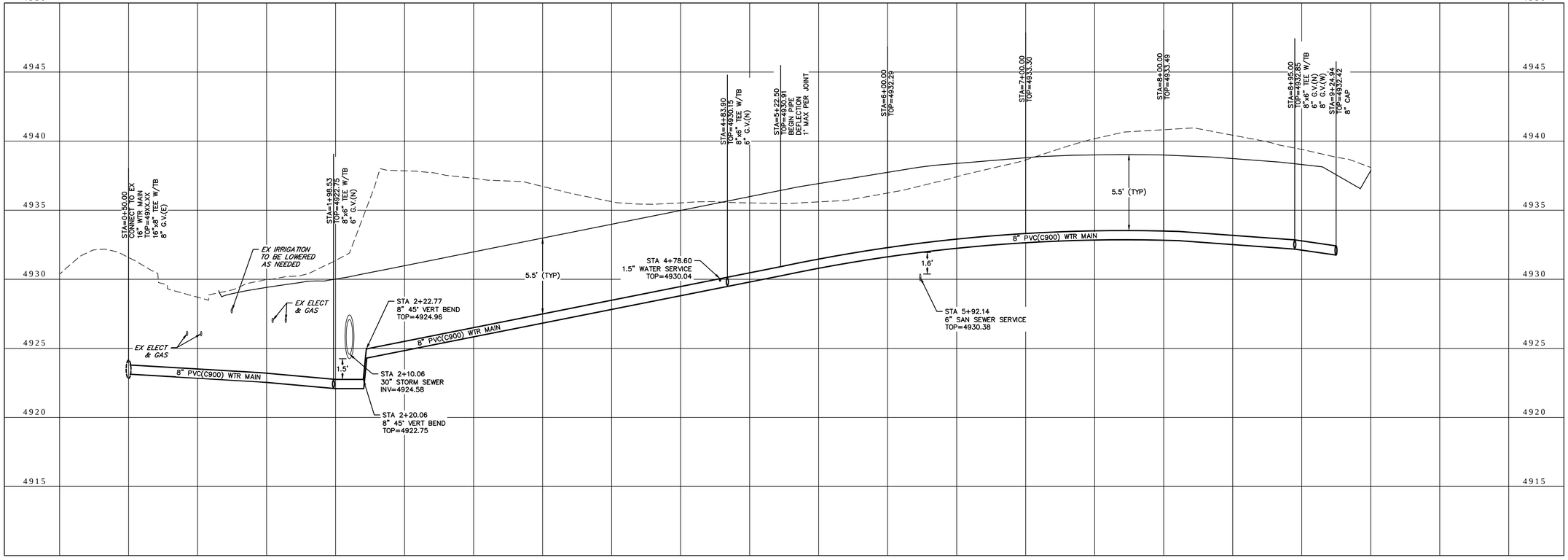


WATER PROFILE


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CONSULTING GROUP
INTERWEST


PREPARED FOR
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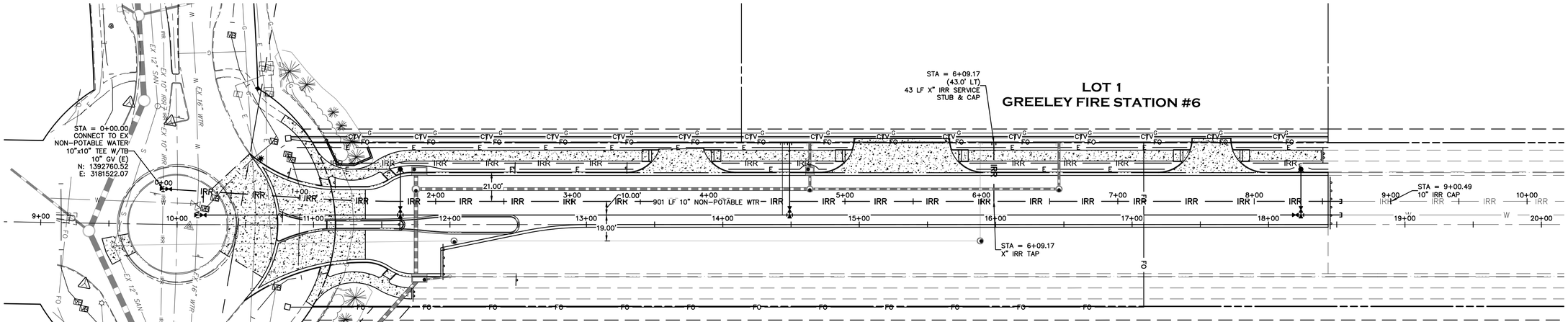
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

WATER PLAN & PROFILE

DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




NOTES:

1. ALL NON-POTABLE WATERLINE CONSTRUCTION SHALL BE PER THE CITY OF GREELEY STANDARD SPECIFICATIONS.
2. NON-POTABLE WATER PIPE SHALL BE AWWA C900 PVC PRESSURE PIPE, PRESSURE CLASS 2000, PURPLE COLOR. PVC PIPE MARKINGS SHALL INCLUDE THE DESIGNATION "CAUTION NON-POTABLE WATER" OR "CAUTION RECLAIMED WATER" IN ADDITION TO THE STANDARD FACTORY LABELING REQUIRED BY AWWA.
3. NON-POTABLE WATERLINES SHALL HAVE A MINIMUM BURY DEPTH OF 3.5 FEET AND A MAXIMUM BURY DEPTH OF 6 FEET.
4. MAXIMUM JOINT DEFLECTION FOR A 10" MAIN IS 1.5°.
5. TRACER WIRE SHALL BE INSTALLED ON ALL PVC WATERLINES.
6. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK. BEFORE COMMENCING NEW CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL UNKNOWN UNDERGROUND UTILITIES.
7. NON-POTABLE IRRIGATION SERVICES 1.5" AND 2" IN DIAMETER SHALL BE TYPE 'K' COPPER. 3" IN DIAMETER SHALL BE AWWA C151 DUCTILE IRON PIPE, AND 4" IN DIAMETER OR GREATER SHALL BE AWWA C151 DUCTILE IRON PIPE OR AWWA C900 PVC.

40 20 0 40 80

HORIZONTAL
SCALE: 1" = 40'
VERTICAL
SCALE: 1" = 4'

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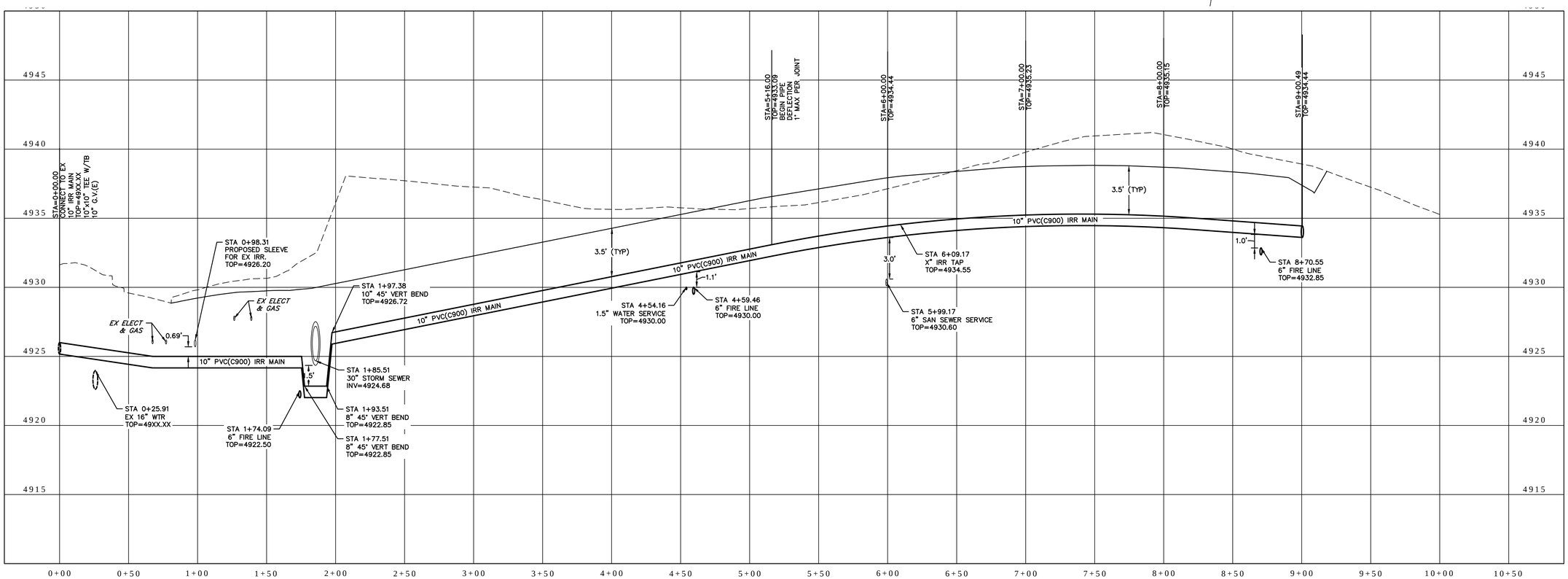


NON-POTABLE WATER MAIN PROFILE


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CONSULTING GROUP
INTERWEST


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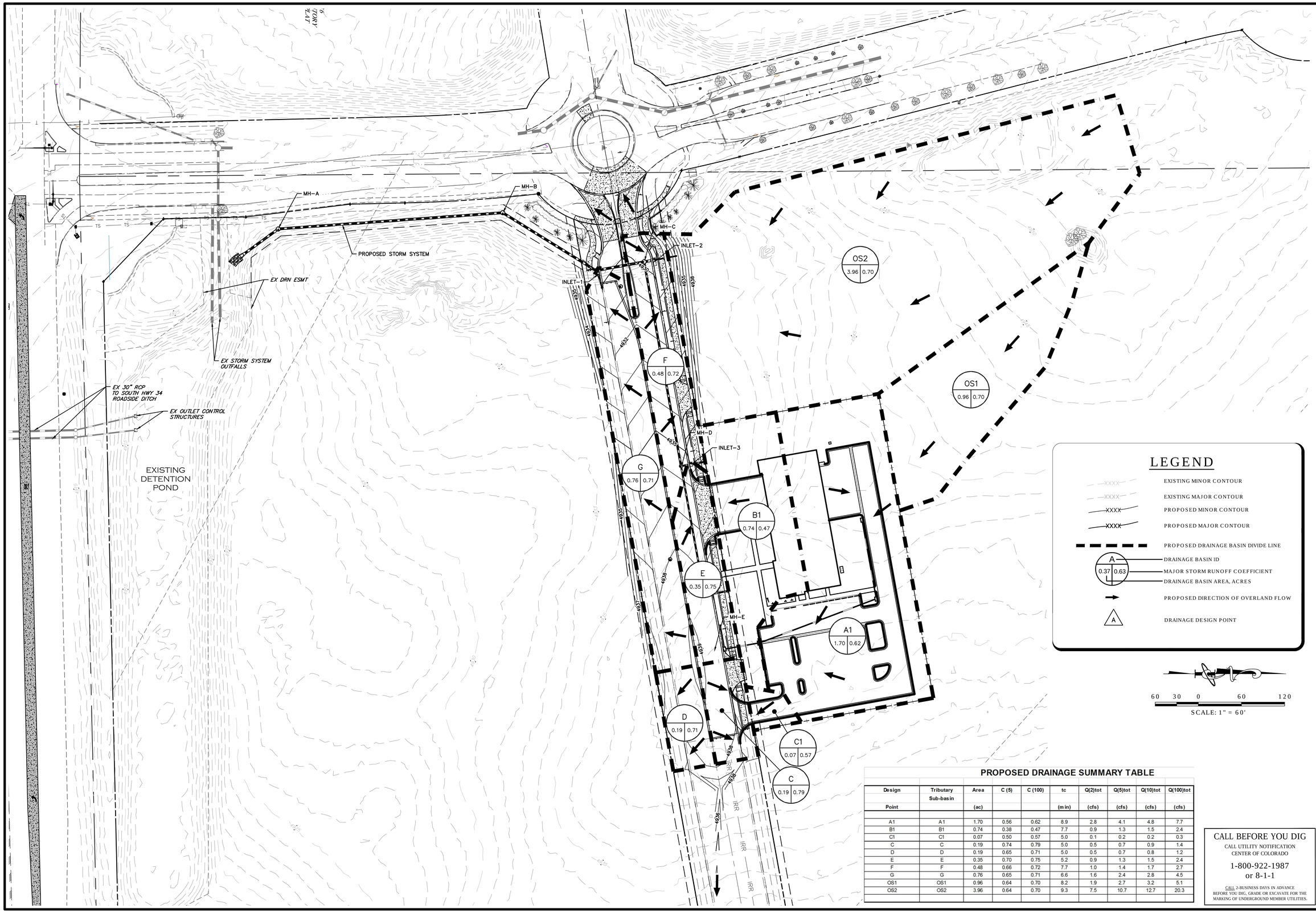
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION
NON-POTABLE WATER PLAN & PROFILE

DATE: 09/13/19
SCALE (H): 1"=40'
SCALE (V): 1"=4'
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




## PROPOSED DRAINAGE SUMMARY TABLE

| Design Point | Tributary Sub-basin | Area (ac) | C (5) | C (100) | tc (min) | Q(2)tot (cfs) | Q(5)tot (cfs) | Q(10)tot (cfs) | Q(100)tot (cfs) |
|---|---|---|---|---|---|---|---|---|---|
| A1 | A1 | 1.70 | 0.56 | 0.62 | 8.9 | 2.8 | 4.1 | 4.8 | 7.7 |
| B1 | B1 | 0.74 | 0.38 | 0.47 | 7.7 | 0.9 | 1.3 | 1.5 | 2.4 |
| C1 | C1 | 0.07 | 0.50 | 0.57 | 5.0 | 0.1 | 0.2 | 0.2 | 0.3 |
| C | C | 0.19 | 0.74 | 0.79 | 5.0 | 0.5 | 0.7 | 0.9 | 1.4 |
| D | D | 0.19 | 0.65 | 0.71 | 5.0 | 0.5 | 0.7 | 0.8 | 1.2 |
| E | E | 0.35 | 0.70 | 0.75 | 5.2 | 0.9 | 1.3 | 1.5 | 2.4 |
| F | F | 0.48 | 0.66 | 0.72 | 7.7 | 1.0 | 1.4 | 1.7 | 2.7 |
| G | G | 0.76 | 0.65 | 0.71 | 6.6 | 1.6 | 2.4 | 2.8 | 4.5 |
| OS1 | OS1 | 0.96 | 0.64 | 0.70 | 8.2 | 1.9 | 2.7 | 3.2 | 5.1 |
| OS2 | OS2 | 3.96 | 0.64 | 0.70 | 9.3 | 7.5 | 10.7 | 12.7 | 20.3 |

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ENGINEERING DIVISION
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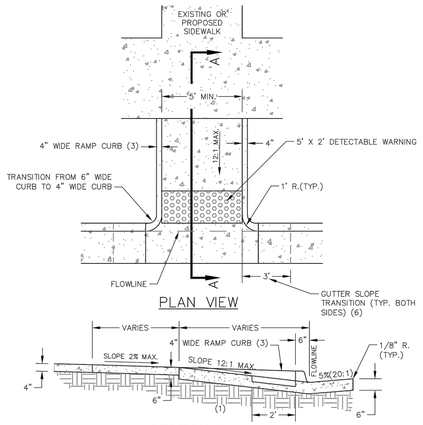
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

DRAINAGE PLAN

DATE: 09/13/19
SCALE (H): 1"=60'
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00




NOTES:

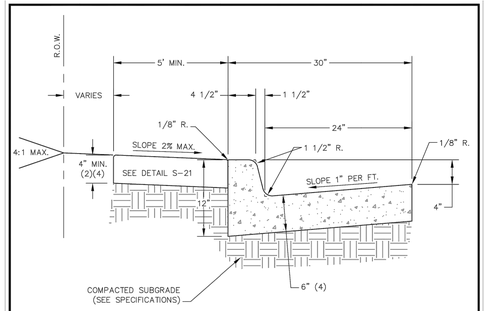
1. COMPACTED SUBGRADE (SEE SPECIFICATIONS).
2. SIX INCH (6") CONCRETE THICKNESS APPLIES TO RAMP AREA.
3. RAMP CURB MAY BE OMITTED AT THE DIRECTION OF THE CITY.
4. ADA DETECTABLE WARNINGS SHALL BE INSTALLED 6" TO 8" FROM FLOWLINE. SEE ADA DETECTABLE WARNING DETAIL.
5. CONCRETE SHOWN (EXCEPT FOR RAMPS AND WALKS) SHALL BE POURED MONOLITHICALLY.
6. PROVIDE A 3' GUTTER SLOPE TRANSITION ON EACH SIDE OF THE BOTTOM OF THE RAMP OPENING. REDUCE SLOPE FROM 12:1 TO 20:1 AT RAMP OPENING.
7. CONSTRUCT A MIN. OF ONE MID-BLOCK CURB RAMP AT "T" INTERSECTIONS, WHERE PEDESTRIAN CROSSING IS DESIRED.

City of Greeley Colorado

CURB RAMP DETAIL FOR DETACHED SIDEWALK

DETAIL NO. S-14

DATE: JULY, 2015 SCALE: N.T.S.




NOTES:

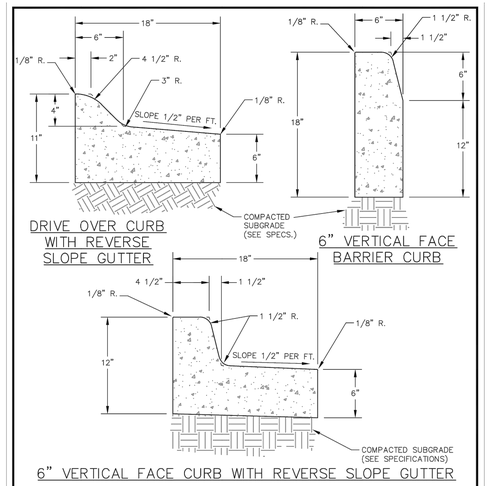
1. WHEN CONSTRUCTING ATTACHED SIDEWALK, CONTRACTION JOINTS FOR SIDEWALKS SHALL MATCH CURB AND GUTTER, MAXIMUM SPACING OF TEN (10) FEET.
2. AT RESIDENTIAL DRIVEWAYS, THE SIDEWALK THICKNESS SHALL BE INCREASED TO SIX (6) INCHES.
3. EXPANSION JOINTS REQUIRED AT 400 FOOT MAXIMUM SPACING. ADDITIONAL JOINTS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. SEE JOINT DETAILS.
4. AT ALLEYS AND COMMERCIAL DRIVEWAYS, THE CURB AND SIDEWALK THICKNESS SHALL BE INCREASED TO EIGHT (8) INCHES.
5. CONCRETE SURFACES TO RECEIVE A LIGHT BROOM FINISH.

City of Greeley Colorado

VERTICAL FACE CURB AND GUTTER

DETAIL NO. S-16

DATE: JULY, 2015 SCALE: N.T.S.




NOTES:

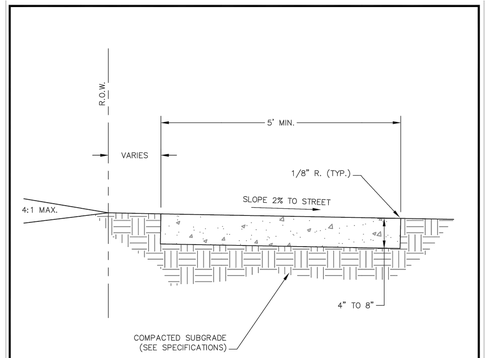
1. CONTRACTION JOINTS FOR CONCRETE MEDIAN COVER SHALL MATCH CURB AND GUTTER, MAXIMUM SPACING OF TEN (10) FEET.
2. EXPANSION JOINTS REQUIRED AT 400 FOOT MAXIMUM SPACING. ADDITIONAL JOINTS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. SEE JOINT DETAILS.
3. CONCRETE SURFACES TO RECEIVE A LIGHT BROOM FINISH.

City of Greeley Colorado

MEDIAN CURBS

DETAIL NO. S-18

DATE: JULY, 2015 SCALE: N.T.S.




NOTES:

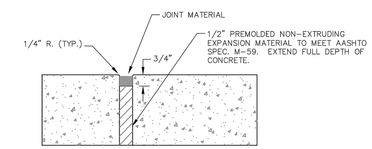
1. MAXIMUM SPACING OF CONTRACTION JOINTS IS TEN (10) FEET.
2. AT RESIDENTIAL DRIVEWAYS, THE SIDEWALK THICKNESS SHALL BE INCREASED TO SIX (6) INCHES.
3. EXPANSION JOINTS REQUIRED AT 400 FOOT MAXIMUM SPACING. ADDITIONAL JOINTS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. SEE JOINT DETAILS.
4. AT ALLEYS AND COMMERCIAL DRIVEWAYS, THE SIDEWALK THICKNESS SHALL BE INCREASED TO EIGHT (8) INCHES.
5. CONCRETE SURFACES TO RECEIVE A LIGHT BROOM FINISH.

City of Greeley Colorado

DETACHED SIDEWALK DETAIL

DETAIL NO. S-21

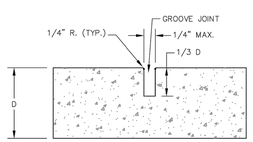
DATE: JULY, 2015 SCALE: N.T.S.




EXPANSION JOINT

NOTE FOR EXPANSION JOINTS:

EXPANSION JOINTS REQUIRED AT 400 FOOT MAXIMUM SPACING. ADDITIONAL JOINTS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.




CONTRACTION JOINT

NOTES FOR CONTRACTION JOINTS:

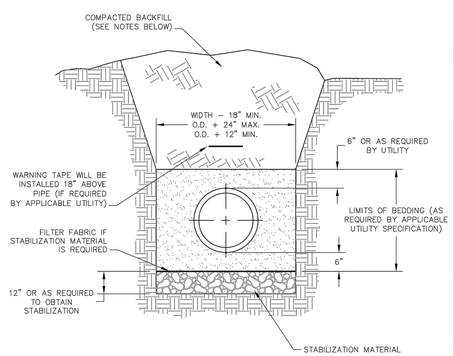
1. FORM WITH TOOL TEMPLATE OR SAWCUT JOINTS.
2. SAWCUT JOINTS, IF USED, SHALL BEGIN AS SOON AS CONCRETE IS HARDENED SUFFICIENTLY TO PERMIT SAWING WITHOUT EXCESSIVE RAVELING AND BEFORE UNCONTROLLED CRACKING OCCURS.
3. MAXIMUM DISTANCE BETWEEN JOINTS IS TEN (10) FEET AND MINIMUM DISTANCE IS FIVE (5) FEET.

City of Greeley Colorado

CONCRETE JOINT DETAILS FOR SIDEWALKS, CURBS, GUTTERS AND CROSS PANS

DETAIL NO. S-22

DATE: JULY, 2015 SCALE: N.T.S.




NOTES:

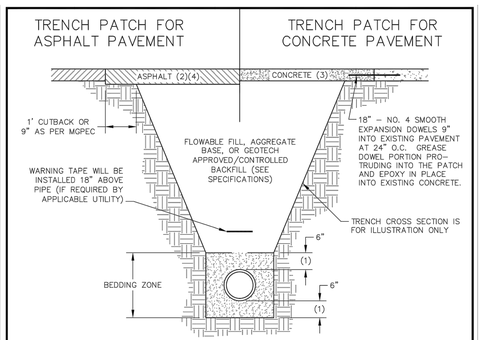
1. RIGHT-OF-WAY AND EASEMENT AREAS SHALL BE GRADED (CUT AND FILL) TO SUBGRADE (+/-0.5') PRIOR TO AND AFTER UTILITY INSTALLATION.
2. BACKFILL WITHIN PUBLIC RIGHT-OF-WAY AND IN EASEMENTS WITHIN 20 FEET OF RIGHT-OF-WAY SHALL BE COMPACTED TO 95% WITHIN +/- 2% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY AASHTO T99 DENSITY. TRENCHES IN EASEMENTS BEYOND 20 FEET OF RIGHT-OF-WAY SHALL BE COMPACTED TO 90%. ALL TRENCHES SHALL BE COMPACTED BY A METHOD APPROVED BY THE CITY.
3. TRENCH EXCAVATION SHALL COMPLY TO ALL OSHA STANDARDS.
4. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
5. IF NOT SPECIFIED BY APPLICABLE UTILITY, AN APPROVED GRADE OF SAND BEDDING SHALL BE INSTALLED TO SPRINGLINE.

City of Greeley Colorado

NEW DEVELOPMENT TRENCH EXCAVATION & BACKFILL DETAIL

DETAIL NO. S-30

DATE: JULY, 2015 SCALE: N.T.S.




| | LOCAL STANDARD & LOCAL LOW VOLUME | | | MAJOR LOCAL, COMMERCIAL & INDUSTRIAL | COLLECTOR | ARTERIAL |
|---|---|---|---|---|---|---|
| | ALLEY | EMER.ACCESS | RESIDENTIAL | | | |
| FULL DEPTH ASPHALT (4) | 5 1/2" | 5 1/2" | 5 1/2" | 7" | 7" | 7" |

NOTES:

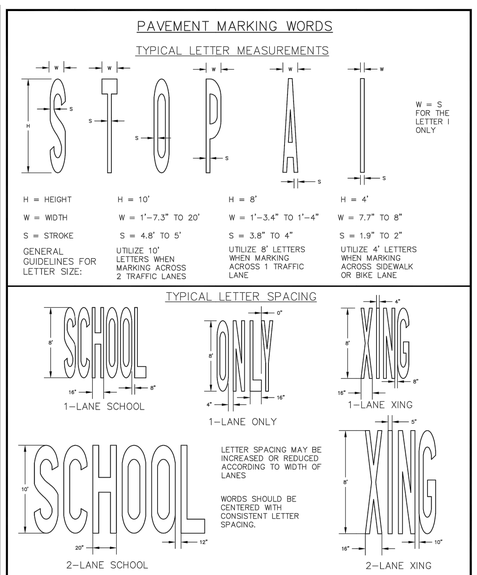
1. USE THE LIMITS OF BEDDING SHOWN IF NOT SPECIFIED BY THE APPLICABLE UTILITY.
2. HOT MIX ASPHALT SHALL BE USED TO PATCH ASPHALT AND SHALL BE GRADE S OR SX. TACK COAT REQUIRED.
3. CONCRETE SHALL BE USED TO PATCH CONCRETE. MATCH EXISTING THICKNESS.
4. FULL DEPTH ASPHALT SHALL BE THICKNESSES AS SHOWN ABOVE OR ONE (1) INCH GREATER THAN THE EXISTING PAVEMENT THICKNESS, WHICHEVER IS GREATER.
5. PATCH MAY NOT END WITHIN THE WHEEL TRACK OF TRAVEL LANES. UP TO THREE (3) FEET OF ADDITIONAL ASPHALT PATCH WILL BE REQUIRED TO KEEP THE JOINT OUT OF THE WHEEL TRACK.
6. MINIMUM SIZE OF PATCH SHALL BE 3' X 3'.

City of Greeley Colorado

EXISTING STREET PAVEMENT PATCH DETAIL FOR ASPHALT & CONCRETE

DETAIL NO. S-31

DATE: JULY, 2015 SCALE: N.T.S.




City of Greeley Colorado

TYPICAL PAVEMENT MARKINGS SHEET 1 OF 3

DETAIL NO. S-38

DATE: JULY, 2015 SCALE: N.T.S.


1218 W. Ash, Suite A
Windsor, Colorado 80550
Phone: (970) 674-3300
Fax: (970) 674-3303
INTERWEST CONSULTING GROUP


PREPARED FOR

CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME

20TH STREET ROADWAY EXTENSION

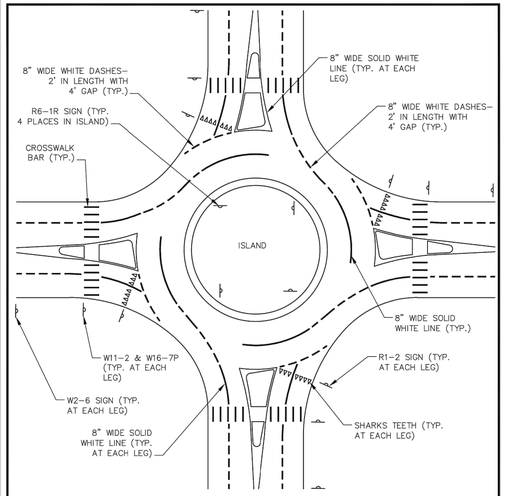
CONSTRUCTION DETAILS

DATE: 09/13/19
SCALE (H): N/A
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00



X:\INTERWEST PROJECTS\2019 PROJECTS\1392-083-00 (GREELEY FIRE STATION OFFICE)\DRAWINGS\ENGINEERING PLANS\1392-083-00.DTL, 9/13/2019 3:31 PM

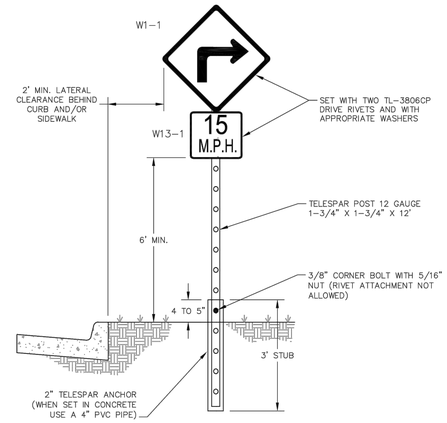



URBAN DOUBLE–LANE ROUNDABOUT

ROUNDABOUT SIGNAGE & PAVEMENT MARKINGS
SHEET 2 OF 2

DETAIL NO. S–40

DATE: JULY, 2015 SCALE: N.T.S.



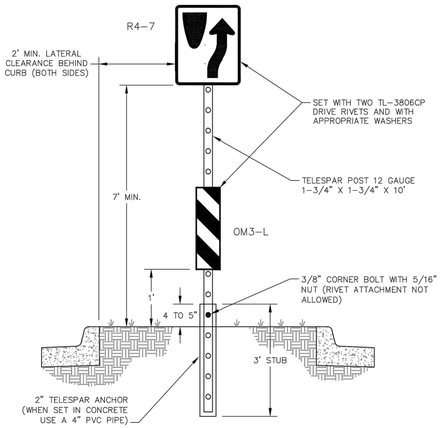

NOTES:

1. SIGN SHOULD BE SET AT AN ANGLE OF 90° AND VISIBLE TO APPROACHING TRAFFIC.
2. ALL SIGNS SHALL MEET THE MOST CURRENT MUTCD STANDARDS.

TYPICAL DIAMOND SIGN INSTALLATION

DETAIL NO. S–43

DATE: JULY, 2015 SCALE: N.T.S.




NOTES:

1. SIGN SHOULD BE SET AT AN ANGLE OF 90° INSIDE NOSE OF ISLAND AND VISIBLE TO APPROACHING TRAFFIC.
2. ALL SIGNS SHALL MEET THE MOST CURRENT MUTCD STANDARDS.

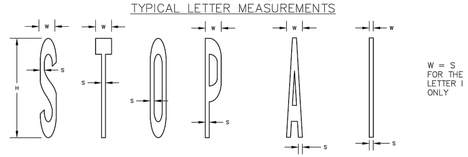
TYPICAL ISLAND SIGN INSTALLATION

DETAIL NO. S–44

DATE: JULY, 2015 SCALE: N.T.S.

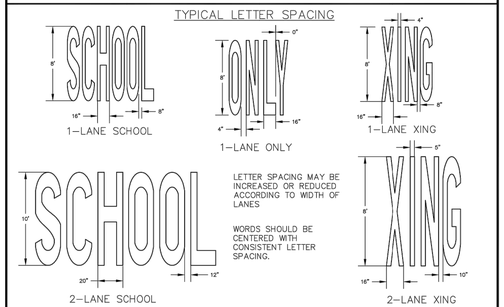
PAVEMENT MARKING WORDS

TYPICAL LETTER MEASUREMENTS




| | | | |
|---|---|---|---|
| H = HEIGHT | H = 10' | H = 8' | H = 4' |
| W = WIDTH | W = 1'–7.3" TO 20' | W = 1'–3.4" TO 1'–4" | W = 7.7" TO 8" |
| S = STROKE | S = 4.8" TO 5' | S = 3.8" TO 4" | S = 1.9" TO 2" |
| GENERAL GUIDELINES FOR LETTER SIZE: | UTILIZE 10' LETTERS WHEN MARKING ACROSS 2 TRAFFIC LANES | UTILIZE 8' LETTERS WHEN MARKING ACROSS 1 TRAFFIC LANE | UTILIZE 4' LETTERS WHEN MARKING ACROSS SIDEWALK OR BIKE LANE |

TYPICAL LETTER SPACING




TYPICAL PAVEMENT MARKINGS
SHEET 1 OF 3

DETAIL NO. S–38

DATE: JULY, 2015 SCALE: N.T.S.


1218 W. Ash, Suite A
Windsor, Colorado 80550
Phone: (970) 674-3300
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INTERWEST CONSULTING GROUP


PREPARED FOR

CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME

20TH STREET ROADWAY EXTENSION

CONSTRUCTION DETAILS

DATE: 09/13/19
SCALE (H): N/A
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00

## STORMWATER GENERAL NOTES

1. BEDDING FOR ALL STORM DRAIN SHALL BE PER THE STANDARD STORM DRAIN BEDDING DETAILS - DETAILS 6-6 AND 6-7 FOR REINFORCED CONCRETE PIPE AND POLYWRAPPED DUCTILE IRON PIPE.

2. ALL STORM DRAINAGE CONSTRUCTION SHALL CONFORM TO THE CITY OF GREELEY'S MOST RECENT STORM DRAINAGE SPECIFICATIONS. A COPY OF THE SPECIFICATIONS MAY BE OBTAINED FROM THE CITY OR FOUND ON THE CITY'S WEB PAGE - GREELEYGOV.COM.

3. RCP SHALL HAVE FLEXIBLE GASKET MATERIAL (WATER TIGHT RUBBER GASKETS) MEETING ASTM C443 AND TYPE 4-G BELL AND SPIGOT JOINTS. DUCTILE IRON PIPE SHALL BE POLYWRAPPED IN ACCORDANCE WITH AWWA STANDARD C-105.

4. BACKFILL MATERIAL MAY BE LOCAL SITE MATERIAL THAT IS WELL-GRADED, NON-COHESIVE GRANULAR MATERIAL FREE OF ROCKS, FROZEN LUMPS, FOREIGN MATERIAL OR STONES GREATER THAN 3" IN ANY DIMENSION, AGGREGATE BASE COURSE, OR FLOWFILL. REMOVE ALL DEBRIS INCLUDING SODA CANS, RAGS, PIPE BANDING MATERIAL, ETC. FROM THE PIPE TRENCH BEFORE BACKFILLING.

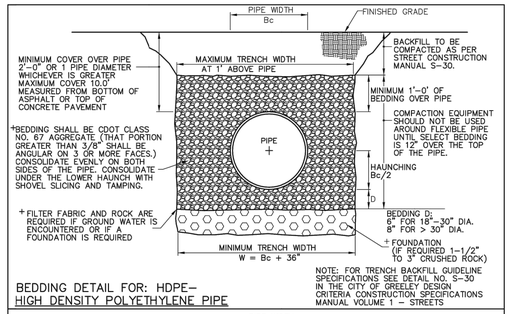
5. ALL AREAS IMPACTED BY THE CONSTRUCTION SHALL BE CLEARED OF PROJECT GENERATED DEBRIS BY THE CONTRACTOR AT THE EARLIEST OPPORTUNITY, BUT IN NO CASE SHALL ANY ROADS OR WALKWAYS BE LEFT UNCLEARED AFTER THE COMPLETION OF THE DAY'S WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE NECESSARY EQUIPMENT AND MATERIAL TO SATISFACTORILY CLEAN THE ROADWAYS.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

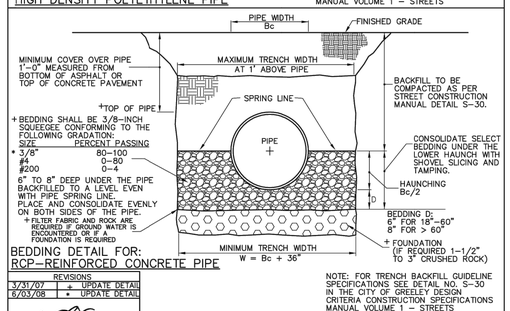
REVISIONS
3/31/07 | + | NEW DETAIL

City of Greeley Colorado — Great. From the Ground Up.

STORMWATER GENERAL NOTES
DETAIL 1-1
DATE: MARCH 2007 SCALE: N.T.S.




BEDDING DETAIL FOR: HDPE-HIGH DENSITY POLYETHYLENE PIPE



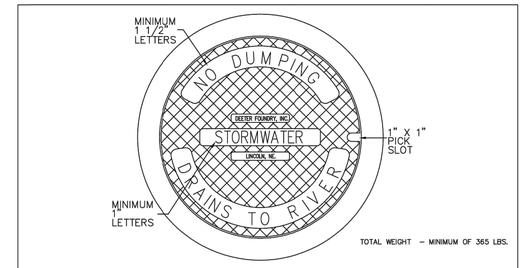

BEDDING DETAIL FOR: RCP-REINFORCED CONCRETE PIPE

NOTE: FOR TRENCH BACKFILL GUIDELINE SPECIFICATIONS SEE DETAIL NO. S-30 IN THE CITY OF GREELEY DESIGN CRITERIA CONSTRUCTION SPECIFICATIONS MANUAL VOLUME 1 - STREETS

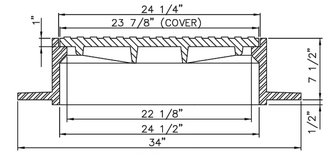
REVISIONS
3/31/07 | + | UPDATE DETAIL
6/03/08 | + | UPDATE DETAIL

City of Greeley Colorado — Great. From the Ground Up.

STANDARD STORM WATER BEDDING DETAIL
DETAIL 6-6
DATE: JUNE 2008 SCALE: N.T.S.




PLAN




SECTION

GENERAL NOTES

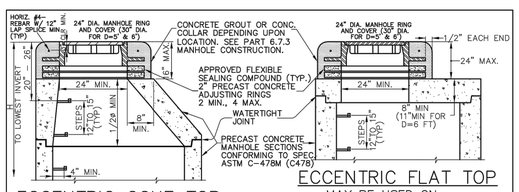
1. RING AND COVER SHALL BE GRAY IRON, MANUFACTURED PER ASTM A-48, AASHTO M 105, CLASS 35B.
2. COVER SHALL BE NONPERFORATED, WITH LETTERING AS SHOWN, CAST ON THE TOP OF THE LID FOR STORMWATER MANHOLES.
+3. COVER SHALL BE BOLTED IF SPECIFIED BY THE PUBLIC WORKS DEPARTMENT. BOLTS SHALL BE BRASS.
+4. NEENAH NO. R-1706 MANHOLE RING AND SOLID COVER, OR DEETER NO. 1258, OR APPROVED EQUAL. TOTAL WEIGHT SHALL BE A MINIMUM OF 365 LBS AND SHALL WITHSTAND HS-20 LOADING.
5. LID SHALL READ "STORMWATER". "STORM SEWER" IS UNACCEPTABLE.
6. FISH SYMBOL ON LID IS PREFERRED, BUT NOT REQUIRED.
7. COVER AND RING OPENING SHALL BE SQUARE, NOT TAPERED.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

REVISIONS
3/31/07 | + | UPDATE DETAIL

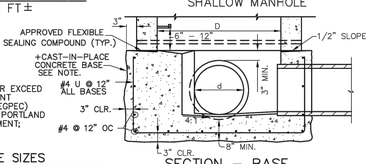
City of Greeley Colorado — Great. From the Ground Up.

STANDARD STORMWATER MANHOLE RING AND COVER
DETAIL 6-8
DATE: MARCH 2007 SCALE: N.T.S.




ECCENTRIC CONE TOP
FOR H > 8 FT±

ECCENTRIC FLAT TOP
MAY BE USED ON SHALLOW MANHOLE

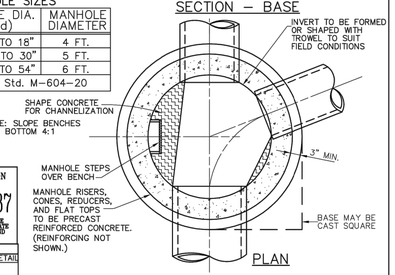



CONCRETE NOTE:
+CONCRETE SHALL MEET OR EXCEED METROPOLITAN GOVERNMENT ENGINEERING COUNCIL (MEGPEC) SPECIFICATIONS, ITEM 11, PORTLAND CEMENT CONCRETE PAVEMENT; SECTION 11.2, MATERIALS.

SECTION - BASE

MANHOLE SIZES

| BOTTOM REINF. | PIPE DIA. (d) | MANHOLE DIAMETER |
|---|---|---|
| #4 @ 12 | 15" TO 18" | 4 FT. |
| #4 @ 12 | 21" TO 30" | 5 FT. |
| #4 @ 12 | 36" TO 54" | 6 FT. |
| 60" & Larger | CDOT Std. M-604-20 | |



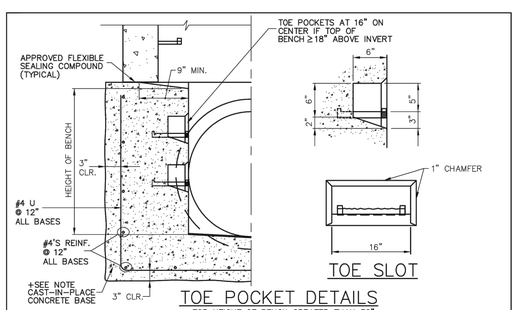

PLAN

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

REVISIONS
3/31/07 | + | UPDATE DETAIL

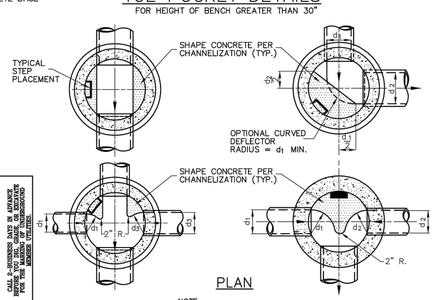
City of Greeley Colorado — Great. From the Ground Up.

STANDARD STORM WATER MANHOLE
DETAIL 6-9
DATE: MARCH 2007 SCALE: N.T.S.




TOE POCKET DETAILS
FOR HEIGHT OF BENCH GREATER THAN 30"

TOE SLOT




PLAN

NOTE:
+ CONCRETE SHALL MEET OR EXCEED METROPOLITAN GOVERNMENT ENGINEERING COUNCIL (MEGPEC) SPECIFICATIONS, ITEM 11, PORTLAND CEMENT CONCRETE PAVEMENT; SECTION 11.2, MATERIALS.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

REVISIONS
3/31/07 | + | UPDATE DETAIL

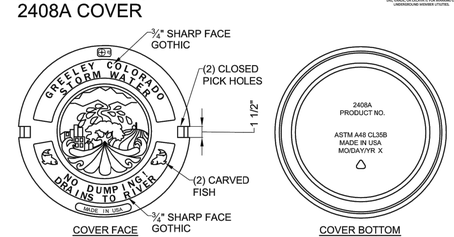
City of Greeley Colorado — Great. From the Ground Up.

STORM MANHOLE TYPICAL BASE CHANNEL DETAILS
DETAIL 6-10
DATE: MARCH 2007 SCALE: N.T.S.

S:\PW\Stormwater\ACAD PROJECTS\INLET DETAILS REVISED FOR CLASS D 2016\NEW MANHOLE COVER 2016.dwg, 5/27/2016 11:37:50 AM, CutePDF Writer

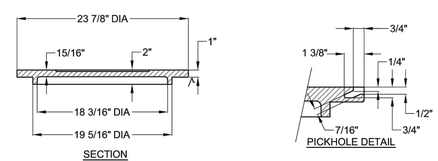
EAST JORDAN
2408A COVER

COLORADO 811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES.




COVER FACE

COVER BOTTOM




SECTION

PICKHOLE DETAIL

**PRODUCT NUMBER**
00240890

**DESIGN FEATURES**
- MATERIALS
  GRAY IRON (CL35B)
- DESIGN LOAD
  HEAVY DUTY
- OPEN AREA
  N/A
- COATING
  UN-DIPPED
- √ DESIGNATES MACHINED SURFACE

**CERTIFICATION**
- ASTM A48
- COUNTRY OF ORIGIN: USA

NOTES:
1. COVER SHALL BE NON-PERFORATED.
2. COVER SHALL BE BOLTED IF SPECIFIED BY THE PUBLIC WORKS DEPARTMENT. BOLTS SHALL BE BRASS.
3. RING AND COVER SHALL BE HEAVY DUTY AND MEET CRITERIA OF AASHTO M306 FOR PROOF LOADS.
4. THIS COVER SHALL BE USED FOR ALL MANHOLES AND TYPE R INLETS.
5. SEE RING DETAIL FOR SPECIFICATIONS.

REVISIONS
5/23/16 | NEW DETAIL

City of Greeley Colorado

STD. STORMWATER MANHOLE COVER E.J. 2408A
ART COMMISSION DESIGN (2015)
DETAIL
DATE: MAY 2016 SCALE: NTS


1218 W. Ash, Suite A
Windsor, Colorado 80550
Phone: (970) 674-3300
Fax: (970) 674-3303
INTERWEST CONSULTING GROUP


PREPARED FOR
CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

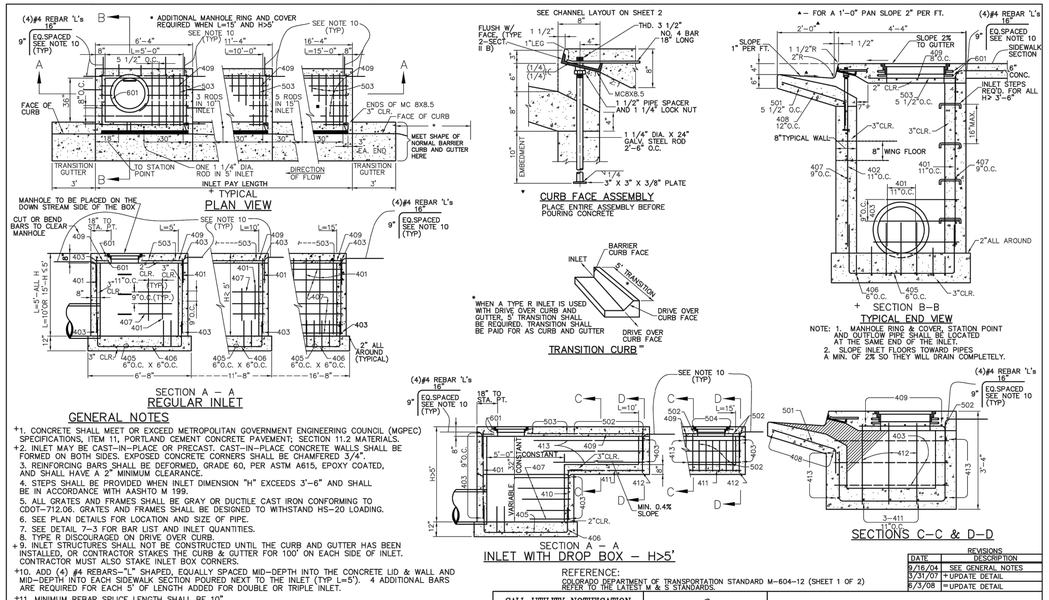
CONSTRUCTION DETAILS

DATE: 09/13/19
SCALE (H): N/A
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00



X:\INTERWEST PROJECTS\2019 PROJECTS\1392-083-00 (GREELEY FIRE STATION OFFSITE)\DRAWINGS\ENGINEERING PLANS\1392-083-00.DTANL, 9/13/2019 3:31 PM




## GENERAL NOTES

+1. CONCRETE SHALL MEET OR EXCEED METROPOLITAN GOVERNMENT ENGINEERING COUNCIL(MGPEC) SPECIFICATIONS, ITEM 11, PORTLAND CEMENT CONCRETE PAVEMENT; SECTION 11.2 MATERIALS.
+2. INLET MAY BE CAST–IN–PLACE OR PRECAST. CAST–IN–PLACE CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4".
3. REINFORDING BARS SHALL BE DEFORMED, GRADE 60, PER ASTM A615, EPOXY COATED, AND SHALL HAVE A 2" MINIMUM CLEARANCE.
4. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" EXCEEDS 3'–6" AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
5. ALL GRATES AND FRAMES SHALL BE GRAY OR DUCTILE CAST IRON CONFORMING TO CDOT–712.06. GRATES AND FRAMES SHALL BE DESIGNED TO WITHSTAND HS–20 LOADING.
6. SEE PLAN DETAILS FOR LOCATION AND SIZE OF PIPE.
7. SEE DETAIL 7–3 FOR BAR LIST AND INLET QUANTITIES.
8. TYPE R DISCOURAGED ON DRIVE OVER CURB.
+9. INLET STRUCTURES SHALL NOT BE CONSTRUCTED UNTIL THE CURB AND GUTTER HAS BEEN INSTALLED, OR CONTRACTOR STAKES THE CURB & GUTTER FOR 100' ON EACH SIDE OF INLET. CONTRACTOR MUST ALSO STAKE INLET BOX CORNERS.
+10. ADD (4) #4 REBARS–"L" SHAPED, EQUALLY SPACED MID–DEPTH INTO THE CONCRETE LID & WALL AND MID–DEPTH INTO EACH SIDEWALK SECTION POURED NEXT TO THE INLET (TYP L=5'). 4 ADDITIONAL BARS ARE REQUIRED FOR EACH 5' OF LENGTH ADDED FOR DOUBLE OR TRIPLE INLET.
+11. MINIMUM REBAR SPLICE LENGTH SHALL BE 10".

REFERENCE:
COLORADO DEPARTMENT OF TRANSPORTATION STANDARD M–604–12 (SHEET 1 OF 2)
REFER TO LATEST M & S STANDARDS.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2–BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

City of Greeley Colorado
Great. From the Ground Up.

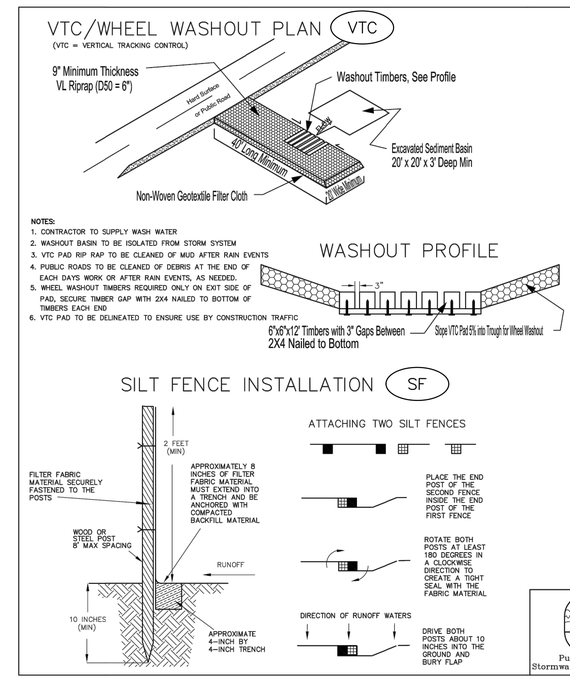
REVISIONS

| DATE | DESCRIPTION |
|---|---|
| 9/18/04 | SEE GENERAL NOTES |
| 3/31/07 | + UPDATE DETAIL |
| 6/3/08 | ≠ UPDATE DETAIL |

# CURB INLET TYPE R

## DETAIL 7–1

DATE: JUNE 2008 SCALE: N.T.S.




NOTES:
1. CONTRACTOR TO SUPPLY WASH WATER
2. WASHOUT BASIN TO BE ISOLATED FROM STORM SYSTEM
3. VTC PAD RIP RAP TO BE CLEANED OF MUD AFTER RAIN EVENTS
4. PUBLIC ROADS TO BE CLEANED OF DEBRIS AT THE END OF EACH DAYS WORK OR AFTER RAIN EVENTS, AS NEEDED.
5. WHEEL WASHOUT TIMBERS REQUIRED ONLY ON EXIT SIDE OF PAD, SECURE TIMBER GAP WITH 2X4 NAILED TO BOTTOM OF TIMBERS EACH END
6. VTC PAD TO BE DELINEATED TO ENSURE USE BY CONSTRUCTION TRAFFIC

## GENERAL EROSION CONTROL NOTES

CONTRACTOR SHALL INSTALL ALL PERIMETER SEDIMENT AND EROSION CONTROL DEVICES INCLUDING, BUT NOT LIMITED TO, SILT FENCE, INLET PROTECTION, VTC PAD, WHEEL WASHOUT, AND SEDIMENT BASINS BEFORE COMMENCING ANY LAND CLEARING OR GRADING ACTIVITIES. THE CONTRACTOR SHALL LIMIT TOPSOIL STRIPPING OPERATIONS TO WITHIN THE AREAS IN WHICH THEY WILL BE IMMEDIATELY WORKING. THE CONSTRUCTION OF UNDERGROUND UTILITIES SHALL BE INCLUDED AS A LAND DISTURBING ACTIVITY. ALL EXCAVATED MATERIAL SHALL BE PLACED WHERE SEDIMENT WILL ERODE BACK INTO THE TRENCH. ALL TRENCHES SHALL BE BACKFILLED BY THE END OF THE DAYS WORK; BACKFILL SHALL BE PERMANENTLY STABILIZED BEFORE CONSTRUCTION IS CONSIDERED COMPLETE.

ALL DISTURBED AREAS AND SOIL STOCKPILES SHALL BE ADEQUATELY STABILIZED AS DEFINED IN THE URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD), VOLUME 3, CONSTRUCTION BEST MANAGEMENT PRACTICES, SECTION 3.0 "EROSION CONTROL". ALL DISTURBED SOILS AND SOIL STOCKPILES SHALL BE WATERED AND MAINTAINED IN A ROUGHENED CONDITION AT ALL TIMES DURING CONSTRUCTION ACTIVITIES TO PREVENT WIND–CAUSED EROSION. ALL LAND DISTURBING ACTIVITIES WILL BE IMMEDIATELY DISCONTINUED WHEN FUGITIVE DUST IMPACTS ADJACENT PROPERTIES, AS DETERMINED BY CITY INSPECTOR. PERMANENT OR TEMPORARY NATIVE SEED (SEE EROSION CONTROL STRUCTURES – DETAIL 12–2 FOR SEEDING SPECIFICATIONS) SOIL STABILIZATION SHALL BE REQUIRED WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED. IF DISTURBED AREAS OR STOCKPILES ARE NOT BROUGHT TO FINAL GRADE WITHIN 30 DAYS FOLLOWING THE INITIAL DISTURBANCE, OR RE–DISTURBANCE, TEMPORARY STABILIZATION MEASURES SHALL BE REQUIRED. NO SOIL STOCKPILE SHALL EXCEED TEN (10) FEET IN HEIGHT. ALL SOIL STOCKPILE SIDE SLOPES SHALL NOT EXCEED A SLOPE OF 4V:1H.

ALL STORM SEWER INLETS SHALL BE PROTECTED FROM THE ENTRY OF SEDIMENT–LADEN WATER. HAY BALES ARE NOT RECOGNIZED BY THE CITY OF GREELEY AS AN ACCEPTABLE FORM OF EROSION CONTROL.

INSPECTION OF ALL EROSION AND SEDIMENT CONTROL BMP'S SHALL BE REQUIRED AT THE END OF EACH DAY'S WORK, WITH NECESSARY MAINTENANCE AND REPAIRS PROVIDED IMMEDIATELY. THE CITY OF GREELEY INSPECTOR SHALL, AT THEIR DISCRETION, REQUIRE ANY EROSION CONTROL DEVICES BE REPAIRED , REPLACED, RELOCATED, MODIFIED, OR REMOVED. SUCH REQUESTS SHALL BE COMPLETED WITHIN 5 WORKING DAYS FOLLOWING RECEIPT OF THE WRITTEN REQUEST FROM THE INSPECTOR. ALL PUBLIC RIGHT OF WAY POLLUTED WITH DIRT, MUD, OR DEBRIS SHALL BE SWEPT CLEAN AT THE END OF EACH DAYS WORK OR AFTER STORM EVENTS, AS NECESSARY. ALL TEMPORARY AND PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AS SOON AS THEIR FUNCTION HAS BEEN FULFILLED. SEDIMENT TRAPS/BASINS SHALL BE CLEANED AND REMOVED, OR STABILIZED, WHEN ALL UPSTREAM AREAS ARE PERMANENTLY STABILIZED. THE SITE CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OFF ALL SILT FROM THE SITE, IF IT IS NOT REUSABLE ON SITE.

THE LANDOWNER SHALL BE HELD RESPONSIBLE FOR THE LONG–TERM STABILITY OF CUT AND FILL SLOPES AND THE SUCCESSFUL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER ON EXPOSED SOIL AS DEFINED IN THE UDFCD, VOLUME 3, CONSTRUCTION BEST MANAGEMENT PRACTICES, SECTION 3.2 "MULCHING".

ALL CONSTRUCTION SUPPLIES OR MATERIALS USED OR STORED ON SITE MUST BE DISPOSED OF PROPERLY AND MUST MEET ALL APPLICABLE MATERIAL SAFETY DATA SHEET CRITERIA.

THE STATE STORMWATER DISCHARGE PERMIT HOLDER MAY BE LIABLE FOR ANY VIOLATIONS RESULTING FROM THE ACTIONS TAKEN BY SITE CONTRACTORS, SUBCONTRACTORS, MAINTENANCE CREWS, ETC.

City of Greeley
Public Works
Stormwater Management

# EROSION CONTROL STRUCTURES

## DETAIL 12–1

DATE: MARCH 2007 SCALE: N.T.S.

(FOR ESTIMATING ONLY)
TABLE ONE — BAR LIST FOR CURB INLETS, TYPE "R"

| MARK | DIA. IN. | O.C. SPACING | TYPE | ALL INLETS L = 5' NO. REQ'D. | ALL INLETS L = 5' LENGTH | INLETS, H ≤ 5' L = 10' NO. REQ'D. | INLETS, H ≤ 5' L = 10' LENGTH | INLETS, H ≤ 5' L = 15' NO. REQ'D. | INLETS, H ≤ 5' L = 15' LENGTH | INLETS, H > 5' L = 10' NO. REQ'D. | INLETS, H > 5' L = 10' LENGTH | INLETS, H > 5' L = 15' NO. REQ'D. | INLETS, H > 5' L = 15' LENGTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 401 | | 11" | II | 15 | * | 21 | * | 29 | * | 11 | * | 11 | * |
| 402 | | 11" | II | 7 | * | 13 | * | 18 | * | 7 | * | 7 | * |
| 403 | | 8" | II | * | 4'–0" | * | 4'–0" | * | 4'–0" | * | 4'–0" | * | 4'–0" |
| 405 | | 6" | VI | 11 | 6'10" | 21 | 6'10" | 31 | 6'10" | 11 | 6'10" | 11 | 6'10" |
| 406 | | 6" | VII | 7 | 8'–10" | 7 | 13'–10" | 7 | 18'–10" | 7 | 8'–10" | 7 | 8'–10" |
| 407 | 1/2" | 8" | II | * | 5'–10" | * | 10'–10" | * | 15'–10" | * | 5'–10" | * | 5'–10" |
| 408 | | 12" | II | 3 | 6'–0" | 3 | 11'–0" | 3 | 16'–0" | 3 | 11'–0" | 3 | 16'–0" |
| 409 | | 8" | II | 6 | 5'–10" | 6 | 10'–10" | 6 | 15'–10" | 6 | 10'–10" | 5 | 10'–10" |
| 410 | | 11" | VII | | | | | | | 3 | * | 3 | * |
| 411 | | 11" | II | | | | | | | 3 | 2'–2" | 3 | 10'–2" |
| 412 | | 11" | II | | | | | | | 3 | 2'–9" | 3 | 2'–9" |
| 413 | | 9" | II | | | | | | | 7 | 10'–10" | 7 | 15'–10" |
| 501 | 5/8" | 5 1/2" | IV | 11 | 3'–4" | 22 | 3'–4" | 33 | 3'–4" | 22 | 3'–4" | 33 | 3'–4" |
| 502 | 5/8" | 5 1/2" | III | | | | | | | 11 | 11'–5" | 17 | 11'–5" |
| 503 | 5/8" | 5 1/2" | II | 5 | 3'–8" | 16 | 3'–8" | 27 | 3'–8" | 6 | 3'–6" | 6 | 3'–6" |
| 504 | 5/8" | 5 1/2" | IX | | | | | | | | | 5 | 8'–4" |
| 601 | 3/4" | 2 1/2" | V | 2 | 8'–10" | 2 | 8'–10" | 2 | 8'–10" | 2 | 8'–10" | 4 | 8'–10" |
| Backwalls | | | | 1 | 5'–10" | 1 | 10'–10" | 1 | 15'–10" | 1 | 10'–10" | 1 | 15'–10" |
| | | | | 2 BARS, 1 ROD | # BARS # RODS | | # BARS # RODS | | # BARS # RODS | 4 BARS 1 RODS | # BARS # RODS | | # BARS # RODS |
| | | | | REGULAR INLETS | | | | | | DROP BOX INLETS | | | |

* VARIABLE, REFER TO TABLE TWO
@ INCLUDE 18" NO. 4 BARS (SEE CHANNEL LAYOUT DETAIL)
▼ SEE CURB FACE ASSEMBLY ON SHEET 1 AND CHANNEL LAYOUT DETAILS ON THIS SHEET

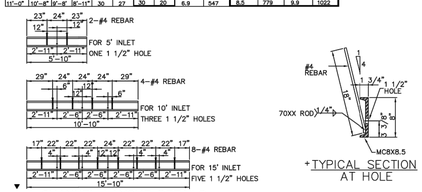
(FOR ESTIMATING ONLY)
TABLE TWO — BARS AND QUANTITIES VARIABLE WITH "H"

| "H" | LENGTH 401 | LENGTH 402 | LENGTH 410 | LENGTH 403 | NO. REQ'D. REGULAR 407 | NO. REQ'D. DROP BOX 403 | NO. REQ'D. DROP BOX 407 | L = 5' CU. YD. CONC. | L = 5' LB. STEEL | L = 10' CU. YD. CONC. | L = 10' LB. STEEL | L = 15' CU. YD. CONC. | L = 15' LB. STEEL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3'–0" | 2'–8" | 1'–8" | | 10 | 7 | | | 3.2 | 285 | 5.3 | 497 | 7.4 | 706 |
| 3'–6" | 3'–2" | 2'–2" | | 10 | 7 | | | 3.4 | 305 | 5.7 | 528 | 7.9 | 747 |
| 4'–0" | 3'–8" | 2'–8" | | 12 | 9 | | | 3.7 | 326 | 6.0 | 559 | 8.4 | 786 |
| 4'–6" | 4'–2" | 3'–2" | | 12 | 9 | | | 3.9 | 334 | 6.4 | 571 | 8.8 | 803 |
| 5'–0" | 4'–8" | 3'–8" | | 14 | 11 | | | 4.1 | 354 | 6.7 | 602 | 9.3 | 844 |
| 5'–6" | 5'–3" | 4'–3" | 3'–6" | 16 | 13 | 15 | 6 | 4.4 | 375 | 6.0 | 607 | 7.4 | 850 |
| 6'–0" | 5'–9" | 4'–9" | 3'–11" | 16 | 13 | 16 | 6 | 4.6 | 382 | 6.2 | 616 | 7.6 | 860 |
| 6'–6" | 6'–3" | 5'–3" | 4'–5" | 18 | 15 | 18 | 8 | 4.8 | 402 | 6.4 | 637 | 7.8 | 880 |
| 7'–0" | 6'–9" | 5'–9" | 4'–11" | 20 | 17 | 19 | 10 | 5.0 | 423 | 6.6 | 654 | 8.0 | 897 |
| 7'–6" | 7'–3" | 6'–3" | 5'–5" | 20 | 17 | 20 | 10 | 5.3 | 430 | 6.9 | 664 | 8.3 | 907 |
| 8'–0" | 7'–9" | 6'–9" | 5'–11" | 22 | 19 | 22 | 12 | 5.5 | 451 | 7.1 | 684 | 8.5 | 927 |
| 8'–6" | 8'–3" | 7'–3" | 6'–5" | 24 | 21 | 23 | 14 | 5.7 | 471 | 7.3 | 702 | 8.7 | 944 |
| 9'–0" | 8'–9" | 7'–9" | 6'–11" | 24 | 21 | 24 | 14 | 6.0 | 479 | 7.6 | 711 | 9.0 | 954 |
| 9'–6" | 9'–3" | 8'–3" | 7'–5" | 26 | 23 | 26 | 16 | 6.2 | 499 | 7.8 | 732 | 9.2 | 974 |
| 10'–0" | 9'–9" | 8'–9" | 7'–11" | 28 | 25 | 27 | 18 | 6.4 | 520 | 8.0 | 749 | 9.4 | 992 |
| 10'–6" | 10'–3" | 9'–3" | 8'–5" | 28 | 25 | 28 | 18 | 6.7 | 527 | 8.3 | 759 | 9.7 | 1001 |
| 11'–0" | 10'–9" | 9'–9" | 8'–11" | 30 | 27 | 30 | 20 | 6.9 | 547 | 8.5 | 779 | 9.9 | 1022 |

NOTE: FOR L=5', L=10' AND L=15' REGULAR INLETS: TOTAL QUANTITIES NEEDED ARE OUTSIDE OF THE HEAVY BLACK LINE.

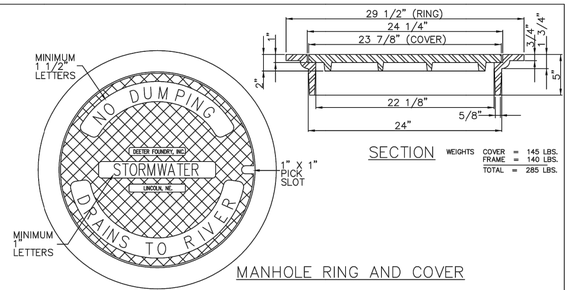
DROP BOX INLETS: TOTAL QUANTITIES NEEDED ARE INSIDE OF THE HEAVY BLACK LINE.

STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL.










## GENERAL NOTES

+1. CONCRETE SHALL MEET OR EXCEED METROPOLITAN GOVERNMENT ENGINEERING COUNCIL(MGPEC) SPECIFICATIONS, ITEM 11, PORTLAND CEMENT CONCRETE PAVEMENT; SECTION 11.2 MATERIALS.
2. CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES AND SHALL BE 8" THICK.
3. INLET STEPS SHALL BE IN ACCORDANCE WITH AASHTO M 199.
4. CURB FACE ASSEMBLY SHALL BE GALVANIZED AFTER WELDING.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4". CURB AND GUTTER CORNERS SHALL BE FINISHED TO MATCH THE EXISTING CURB AND GUTTER BEYOND THE TRANSITION GUTTER.
6. REINFORCING BARS SHALL BE DEFORMED, GRADE 60, PER ASTM A615, EPOXY COATED, AND SHALL HAVE A 2" MINIMUM CLEARANCE.
7. DIMENSIONS AND WEIGHTS OF TYPICAL MANHOLE RING AND COVER ARE NOMINAL.
8. MATERIAL FOR MANHOLE RINGS AND COVERS SHALL BE GRAY OR DUCTILE CAST IRON CONFORMING TO CDOT–712.06.
9. SINCE PIPE ENTRIES INTO THE INLET ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE REQUIRED IN THE WORK. QUANTITIES INCLUDE VOLUMES OCCUPIED BY PIPES.
10. STRUCTURAL STEEL SHALL BE GALVANIZED AND SHALL CONFORM TO THE REQUIREMENTS OF CDOT – 712.06.
+11. MINIMUM REBAR SPLICE LENGTH SHALL BE 10".

REFERENCE:
COLORADO DEPARTMENT OF TRANSPORTATION STANDARD M–604–12 (SHEET 2 OF 2)
REFER TO LATEST M & S STANDARDS.

REVISIONS

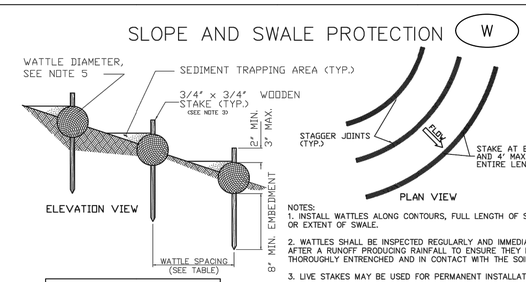
| DATE | DESCRIPTION |
|---|---|
| 7/12/00 | MANHOLE RING AND FRAME ≠ 2018–A NEENAH / DETER FOUNDRY, INC. OR EQUAL |
| 9/16/04 | CHANGED TEXT ON M/H LID, NOTES |
| 3/31/07 | + UPDATE DETAIL |

Public Works Department

# CURB INLET TYPE R

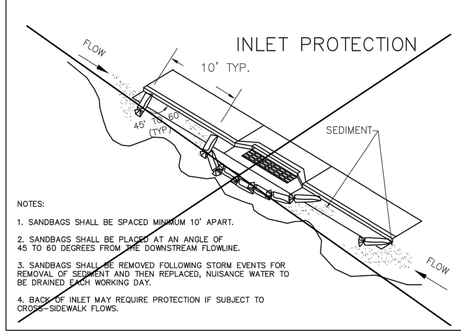
## DETAIL 7–1 (CONTINUED)

DATE: MARCH 2007 SCALE: N.T.S.

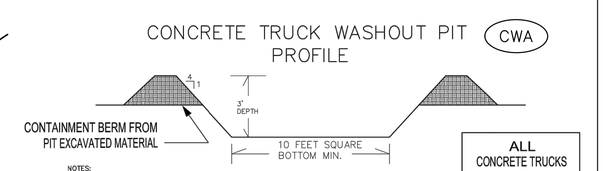



| WATTLE SPACING TABLE | |
|---|---|
| SLOPE TYPE | MAXIMUM SPACING |
| ALL SWALES | 20 FEET |
| 4:1 SLOPE OR > | 40 FEET |

NOTES:
1. INSTALL WATTLES ALONG CONTOURS, FULL LENGTH OF SLOPE OR EXTENT OF SWALE.
2. WATTLES SHALL BE INSPECTED REGULARLY AND IMMEDIATELY AFTER A RUNOFF PRODUCING RAINFALL TO ENSURE THEY REMAIN THOROUGHLY ENTRENCHED AND IN CONTACT WITH THE SOIL.
3. LIVE STAKES MAY BE USED FOR PERMANENT INSTALLATIONS.
4. INSTALL WATTLES SNUGLY INTO THE TRENCH (4"DEEP). ABUT ADJACENT WATTLES TIGHTLY, END TO END, WITHOUT OVERLAPPING THE ENDS.
5. WATTLES TO BE 9" MIN DIAMETER FOR SLOPES, 12" MIN DIAMETER FOR SWALES.




NOTES:
1. SANDBAGS SHALL BE SPACED MINIMUM 10' APART.
2. SANDBAGS SHALL BE PLACED AT AN ANGLE OF 45 TO 60 DEGREES FROM THE DOWNSTREAM FLOWLINE.
3. SANDBAGS SHALL BE REMOVED FOLLOWING STORM EVENTS FOR REMOVAL OF SEDIMENT AND THEN REPLACED, NUISANCE WATER TO BE DRAINED EACH WORKING DAY.
4. BACK OF INLET MAY REQUIRE PROTECTION IF SUBJECT TO CROSS–SIDEWALK FLOWS.




NOTES:
1. PIT TO BE MAINTAINED AND UTILIZED UNTIL ALL CONCRETE WORK IS COMPLETED, INCLUDING ALL FOUNDATION AND FLATWORK. RELOCATED PITS SHALL MEET THIS STANDARD.
2. PIT TO BE PERMANENTLY SIGNED TO ALERT DRIVERS OF ITS LOCATION
3. SET CONCRETE TO BE BROKEN UP AND DISPOSED OF PROPERLY OFF SITE PER LOCAL, STATE, AND FEDERAL LAWS.
4. WASHOUT PITS THAT ARE SEPARATED FROM A PAVED SURFACE MAY REQUIRE A VTC PAD TO PROTECT STREETS FROM TRACKING OF DIRT.

*SIGN: 2' Tall x 3' Wide on 4' Tall Post, 6"x2" Lettering

City of Greeley
Public Works
Stormwater Management

# EROSION CONTROL STRUCTURES

## DETAIL 12–2

DATE: MARCH 2007 SCALE: N.T.S.


1218 W. Ash, Suite A
Windsor, Colorado 80550
Phone: (970) 674-3300
Fax: (970) 674-3303
CONSULTING GROUP
INTERWEST


PREPARED FOR
CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME
20TH STREET ROADWAY EXTENSION

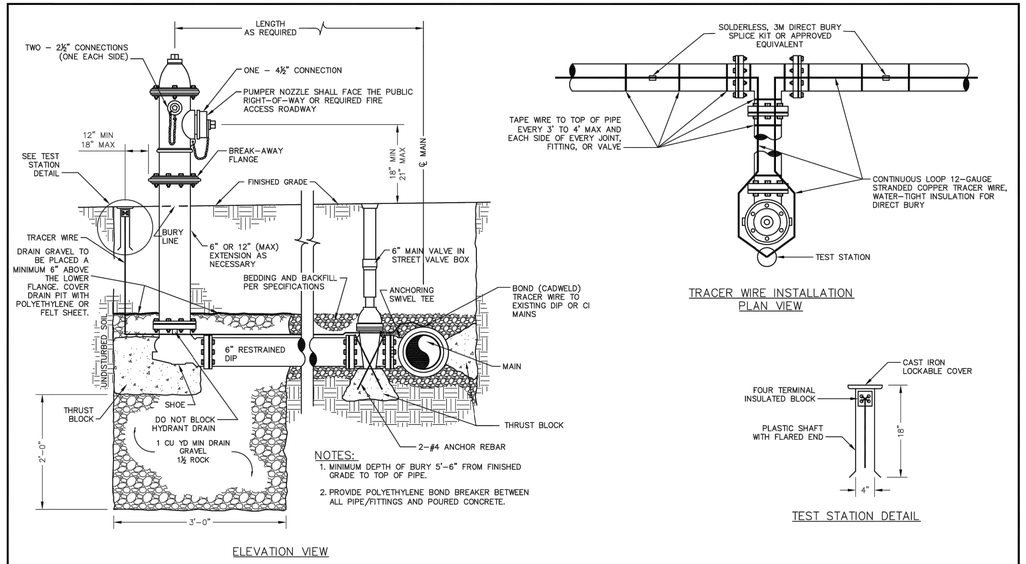
CONSTRUCTION DETAILS

DATE: 09/13/19
SCALE (H): N/A
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00



K:\INTERWEST PROJECTS\2019 PROJECTS\1392-083-00 (GREELEY FIRE STATION OFFSITE)\DRAWINGS\ENGINEERING PLANS\1392-083-00.DTANL, 9/13/2019 3:31 PM




NOTES:

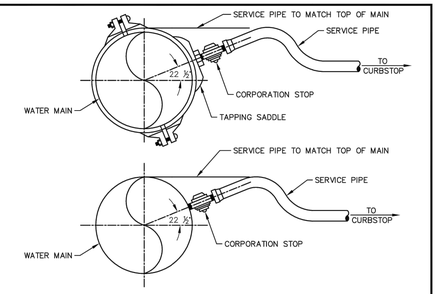
1. MINIMUM DEPTH OF BURY 5'–6" FROM FINISHED GRADE TO TOP OF PIPE.
2. PROVIDE POLYETHYLENE BOND BREAKER BETWEEN ALL PIPE/FITTINGS AND POURED CONCRETE.

City of Greeley Colorado — Great. From the Ground Up.

FIRE HYDRANT ASSEMBLY WITH TRACER WIRE INSTALLATION

DETAIL NO. W–1

DATE: JANUARY, 2008 SCALE: N.T.S.




TYPE OF PIPE AND SIZE OF TAP

| PIPE SIZE | CAST IRON | | | | | DUCTILE IRON | | | | | PVC C–900 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3/4" | 1" | 1 1/2" | 2" | 3"&4" | 3/4" | 1" | 1 1/2" | 2" | 3"&4" | < 2" | > 2" |
| 3" | S | NO | NO | NO | TSV | NO | NO | NO | NO | TSV | S | TSV |
| 4" | DT | S | NO | NO | TSV | S | S | NO | NO | TSV | S | TSV |
| 6" | DT | DT | S | S | TSV | DT | S | S | S | TSV | S | TSV |
| 8" | DT | DT | S | S | TSV | DT | DT | S | S | TSV | S | TSV |
| 12" | DT | DT | S | S | TSV | DT | DT | S | S | TSV | S | TSV |
| 16" | DT | DT | S | S | TSV | DT | DT | S | S | TSV | N/A | N/A |

"S" – TAPPING SADDLE REQUIRED, ALL SADDLES SHALL HAVE AWWA TAPER THREADS.
"DT" – DIRECT TAP ALLOWED.
"NO" – NO TAP PERMITTED WITH OR WITHOUT A SADDLE, A TEE CONNECTION MAY BE PERMITTED IF SPECIFICALLY AUTHORIZED BY THE WATER DEPARTMENT.
"TSV" – TAPPING SLEEVE AND VALVE REQUIRED.
"N/A" – NOT APPLICABLE.

NOTES:

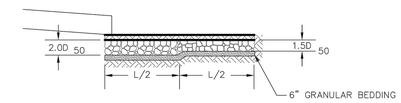
1. REFERENCE CITY OF GREELEY, WATER AND SEWER CONSTRUCTION SPECIFICATIONS, LATEST EDITION, FOR TAPPING SADDLE SPECIFICATIONS.
2. EXISTING STEEL MAINS, TWELVE INCHES (12") IN DIAMETER OR LESS, SHALL BE TAPPED USING A CITY ACCEPTED TAPPING SADDLE.

City of Greeley Colorado — Great. From the Ground Up.

WATER SERVICE CONNECTION

DETAIL NO. W–6

DATE: JANUARY, 2008 SCALE: N.T.S.



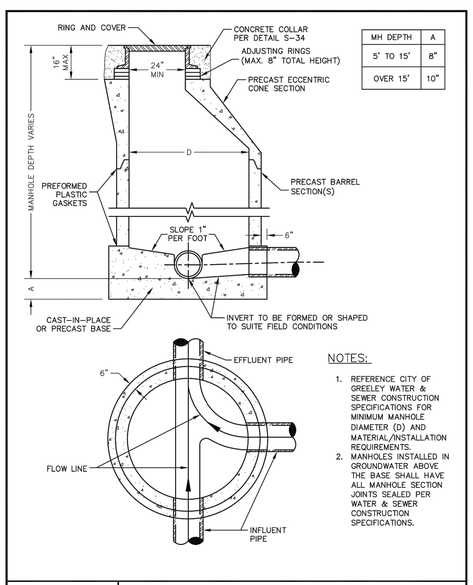

D = d50 = STATE CLASSIFICATION FOR NOMINAL STONE SITE.

IF RIP–RAP TO BE GROUTED:
GROUT SHALL BE IN ACCORDANCE TO ASTM:C1107–LATEST REVISION.
GROUT SHALL BE VIBRATED IN PLACE.
TOPS OF EXPOSED RIP–RAP WILL BE WET BRUSHED AND CLEANED OF GROUT TO EXPOSE RIP–RAP COLOR.

| RIPRAP DESIGNATION | % SMALLER THAN GIVEN SIZE BY WEIGHT | INTERMEDIATE ROCK DIMENSION (INCHES) | $D_{50}$ (INCHES) |
|---|---|---|---|
| TYPE VL | 70–100 | 12 | |
| | 50–70 | 9 | 6** |
| | 35–50 | 6 | |
| | 2–10 | 2 | |
| TYPE L | 70–100 | 15 | |
| | 50–70 | 12 | 9** |
| | 35–50 | 9 | |
| | 2–10 | 3 | |
| TYPE M | 70–100 | 21 | |
| | 50–70 | 18 | 12 |
| | 35–50 | 12 | |
| | 2–10 | 4 | |
| TYPE H | 100 | 30 | |
| | 50–70 | 24 | 18 |
| | 35–50 | 18 | |
| | 2–10 | 6 | |
| TYPE VH | 100 | 42 | |
| | 50–70 | 33 | 24 |
| | 35–50 | 12 | |
| | 2–10 | 9 | |

STORMWATER CONSTRUCTION DRAWINGS

RIPRAP DRAWING




| MH DEPTH | A |
|---|---|
| 5' TO 15' | 8" |
| OVER 15' | 10" |

NOTES:

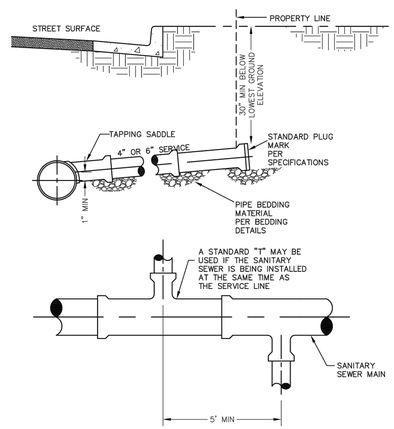
1. REFERENCE CITY OF GREELEY WATER & SEWER CONSTRUCTION SPECIFICATIONS FOR MINIMUM MANHOLE DIAMETER (D) AND MATERIAL/INSTALLATION REQUIREMENTS.
2. MANHOLES INSTALLED IN GROUNDWATER ABOVE THE BASE SHALL HAVE ALL MANHOLE SECTION JOINTS SEALED PER WATER & SEWER CONSTRUCTION SPECIFICATIONS.

City of Greeley Colorado — Great. From the Ground Up.

STANDARD SANITARY SEWER MANHOLE

DETAIL NO. SS–1

DATE: JANUARY, 2008 SCALE: N.T.S.




NOTES:

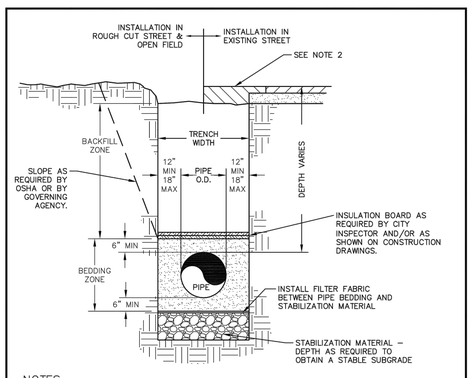
1. IN NO CASE SHALL THE SERVICE LINE PROTRUDE INTO THE MAIN.
2. SERVICES ARE 4" OR 6" IN DIAMETER AND SHALL HAVE A MINIMUM SLOPE OF 1.0% (⅛" PER FOOT) AND A MAXIMUM SLOPE OF 8.0%
3. SERVICES LARGER THAN 6" DIAMETER SHALL BE CONNECTED TO A MANHOLE.
4. SERVICES SHALL EXTEND TO THE PROPERTY LINE UNLESS OTHERWISE SHOWN ON CITY ACCEPTED CONSTRUCTION DRAWINGS.
5. THE SPRINGLINE OF THE SERVICE LINE SHALL BE A MINIMUM OF 1" ABOVE THE SPRINGLINE OF THE SANITARY SEWER MAIN AND NO CLOSER THAN 1' TO A PIPE JOINT.

City of Greeley Colorado — Great. From the Ground Up.

SANITARY SEWER SERVICE CONNECTION

DETAIL NO. SS–4

DATE: JANUARY, 2008 SCALE: N.T.S.




NOTES:

1. REFER TO WATER AND SEWER DEPARTMENT CONSTRUCTION SPECIFICATIONS FOR STABILIZATION, FILTER FABRIC, BEDDING, BACKFILL MATERIAL, AND COMPACTION REQUIREMENTS. FOR ANY CONFLICT BETWEEN WATER AND SEWER AND PUBLIC WORKS BACKFILL MATERIAL SPECIFICATIONS AND COMPACTION REQUIREMENTS, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. REFER TO STREETS DETAIL S–31 "EXISTING STREET PAVEMENT PATCH DETAIL FOR ASPHALT & CONCRETE", CURRENT VERSION, FOR STREET CUT REQUIREMENTS.
3. AN OVER EXCAVATED TRENCH SHALL BE BACKFILLED AND COMPACTED (AS PER SPECIFICATIONS) UNDER THE DIRECTION OF THE CITY.
4. PIPELINE SHALL BE LAID IN A PROPOSED FILL AREA PRIOR TO AREA BEING COMPLETELY FILLED TO PROPOSED FINAL GRADES AND COMPACTED PER THE CITY OF GREELEY 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.

City of Greeley Colorado — Great. From the Ground Up.

TRENCH CROSS SECTION

DETAIL NO. WS–2

DATE: JANUARY, 2008 SCALE: N.T.S.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INTERWEST CONSULTING GROUP


PREPARED FOR

CITY OF GREELEY PUBLIC WORKS
ENGINEERING DIVISION
1001 9TH AVE
GREELEY CO 80631
PHONE: 970-350-9794

PROJECT NAME

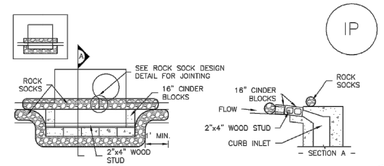
20TH STREET ROADWAY EXTENSION

CONSTRUCTION DETAILS

DATE: 09/13/19
SCALE (H): N/A
SCALE (V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00

## SC-6 Inlet Protection (IP)

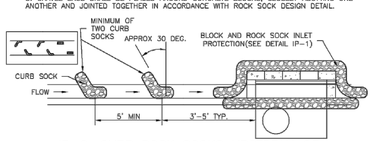



IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

IP-1

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



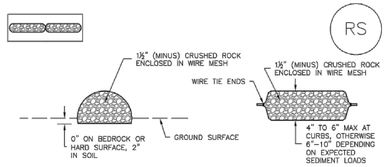

IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

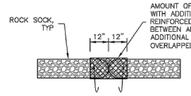
1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.



## SC-5 Rock Sock (RS)




ROCK SOCK SECTION ROCK SOCK PLAN




ROCK SOCK JOINTING

ANY GAP AT JOINT SHALL BE FILLED WITH AN ADEQUATE AMOUNT OF 1½" (MINUS) CRUSHED ROCK AND WRAPPED WITH ADDITIONAL WIRE MESH SECURED TO ENDS OF ROCK REINFORCED SOCK. AS AN ALTERNATIVE TO FILLING JOINTS BETWEEN ADJOINING ROCK SOCKS WITH CRUSHED ROCK AND ADDITIONAL WIRE WRAPPING, ROCK SOCKS CAN BE OVERLAPPED (TYPICALLY 12-INCH OVERLAP) TO AVOID GAPS.

| GRADATION TABLE | |
|---|---|
| SIEVE SIZE | MASS PERCENT PASSING SQUARE MESH SIEVES |
| | NO. 4 |
| 2"<br>1½"<br>1"<br>¾"<br>⅜" | 100<br>90 – 100<br>20 – 55<br>0 – 15<br>0 – 5 |
| MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES. | |

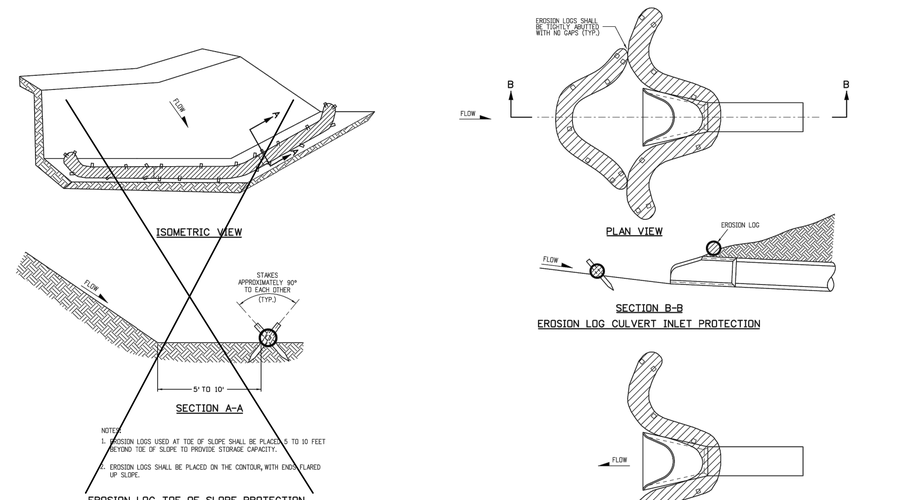
ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION(S) OF ROCK SOCKS.
2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).
3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF ½", RECOMMENDED MINIMUM ROLL WIDTH OF 48"
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS-1. ROCK SOCK PERIMETER CONTROL

RS






EROSION LOG APPLICATIONS

| Computer File Information | | Sheet Revisions | |
|---|---|---|---|
| Creation Date: 07/04/12 Initials: DLM | | Date: | Comments |
| Last Modification Date: 07/04/12 Initials: LTA | (R-X) | | |
| Full Path: www.coloradodot.info/business/designsupport | (R-X) | | |
| Drawing File Name: 2080103010.dgn | (R-X) | | |
| CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | (R-X) | | |

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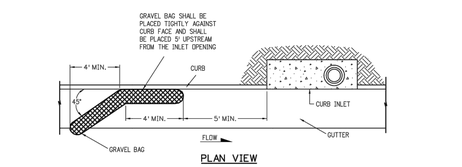
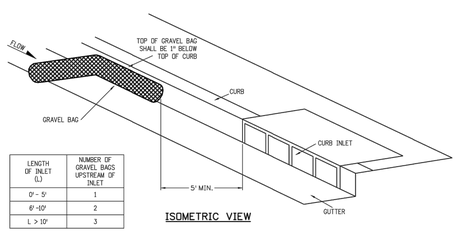
TEMPORARY EROSION CONTROL

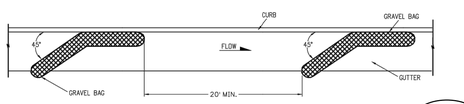
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-208-1
Sheet No. 3 of 10



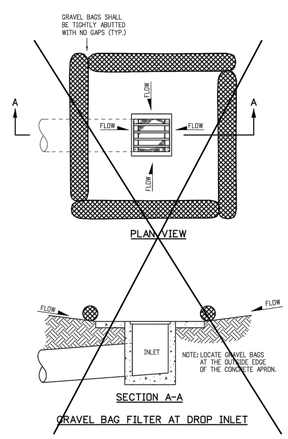




| LENGTH OF INLET (L) | NUMBER OF GRAVEL BAGS UPSTREAM OF INLET |
|---|---|
| 0' - 5' | 1 |
| 6' -10' | 2 |
| L > 10' | 3 |




PLAN VIEW FOR MULTIPLE GRAVEL BAGS

GRAVEL BAG CURB CHECK




GRAVEL BAG FILTER AT DROP INLET

RS

GRAVEL BAG APPLICATIONS

| Computer File Information | | Sheet Revisions | |
|---|---|---|---|
| Creation Date: 07/04/12 Initials: DLM | | Date: | Comments |
| Last Modification Date: 07/04/12 Initials: LTA | (R-X) | | |
| Full Path: www.coloradodot.info/business/designsupport | (R-X) | | |
| Drawing File Name: 2080102010.dgn | (R-X) | | |
| CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | (R-X) | | |

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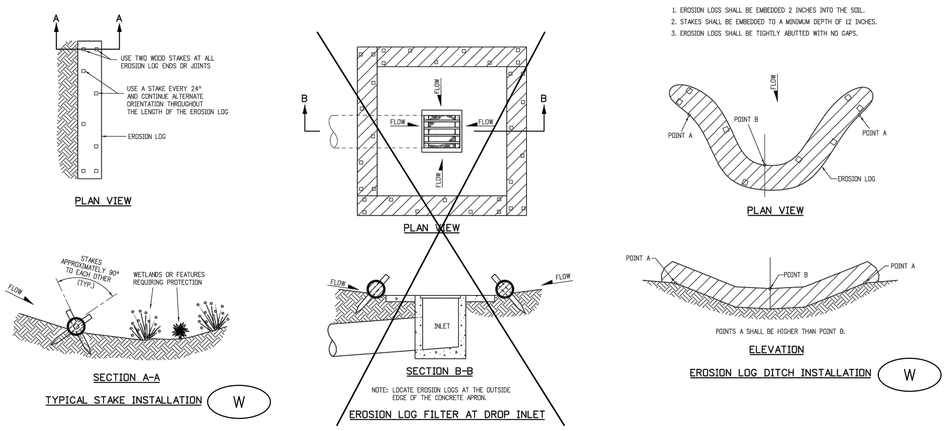
TEMPORARY EROSION CONTROL

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-208-1
Sheet No. 4 of 10

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M-208-1
Sheet No. 2 of 10

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PROJECT NAME
20TH STREET ROADWAY EXTENSION

CONSTRUCTION DETAILS

DATE: 09/13/19
SCALE(H): N/A
SCALE(V): N/A
DESIGNED BY: SB
CHECKED BY: RA

PROJ. NO. 1392-083-00