Set No._____

CITY OF GRAND JUNCTION

TIARA RADO FORCE MAIN REPLACEMENT PROJECT

GRAND JUNCTION, COLORADO

BID SET

APRIL 2022

PREPARED UNDER THE SUPERVISION OF

JVA, Inc.

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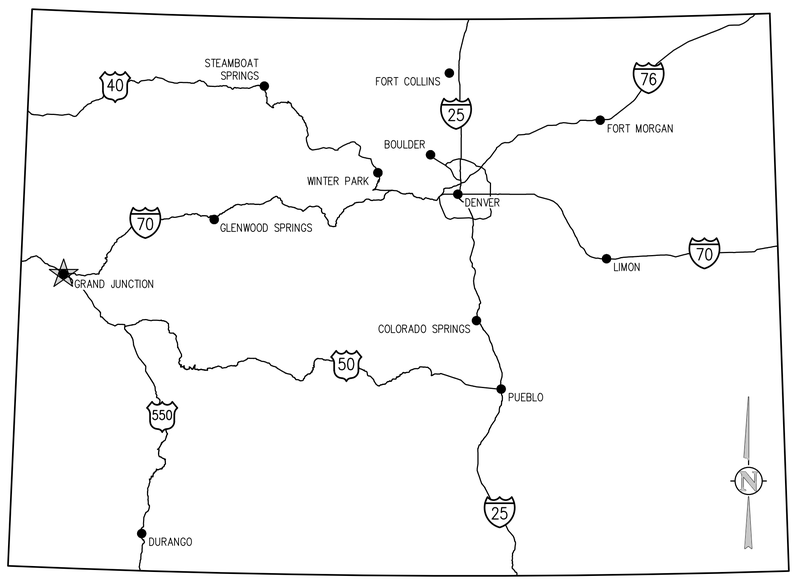
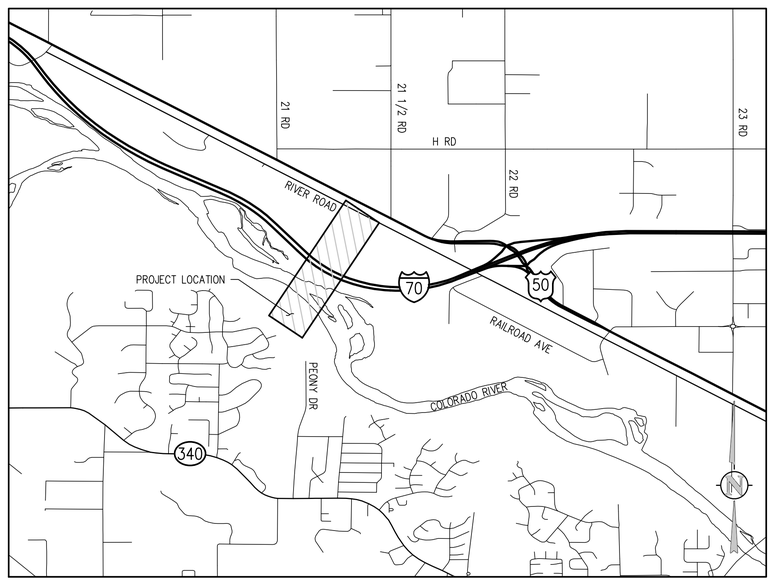
DRAWING INDEX



VICINITY MAP
NTS



PROJECT LOCATION MAP
NTS

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ABBREVIATIONS

AASHTO	AMERICAN ASSOC. OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABAN	ABANDON
AC	ASPHALTIC CONCRETE PAVING
ADDL	ADDITIONAL
ADDM	ADDENDUM
ADJ	ADJUSTABLE
AL	ALUMINUM
ALT	ALTERNATE
AMT	AMOUNT
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ARV	AIR RELIEF VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASPH	ASPHALT
ASSY	ASSEMBLY
ASYM	ASYMMETRICAL
AUTO	AUTOMATIC
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOC.
BC	BACK OF CURB
BFV	BUTTERFLY VALVE
BG	FINISHED GRADE ADJACENT TO BOTTOM OF WALL
BLDG	BUILDING
BLK	BLOCK
BM	BENCH MARK
BMP	BEST MANAGEMENT PRACTICE
BS	BACKSIGHT
BOS	BOTTOM OF STEP
BOT	BOTTOM
BSMT	BASEMENT
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
BW	BOTTOM OF WALL
CB	CATCH BASIN
CCW	COUNTER CLOCKWISE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CIP	CAST IRON PIPE
CJ	CONSTRUCTION JOINT
CL	CENTER LINE OR CHAIN LINK
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS(ATION)
COR	CORNER
CR	CONCENTRIC REDUCER
CTR	CENTER
CY	CUBIC YARDS
DEMO	DEMOLITION
DIA	DIAMETER
DIAG	DIAGONAL
DIP	DUCTILE IRON PIPE
DOM	DOMESTIC
DN	DOWN
DR	DRAIN
DWG	DRAWING
DWL	DOWEL
E	EAST
EA	EACH
ECC	ECCENTRIC
EJ	EXPANSION JT
EL	ELEVATION
ELB	ELBOW
ELEC	ELECTRICAL
ENGR	ENGINEER
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ESMT	EASEMENT
EST	ESTIMATE
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EXP JT	EXPANSION JOINT
EXIST	EXISTING
FND	FOUNDATION
FES	FLARED END SECTION
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FN	FENCE
FOC	FACE OF CONCRETE
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
FTG	FOOTING OR FITTING
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GCO	GRADE CLEANOUT
GIP	GALVANIZED IRON PIPE
GND	GROUND
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR	GRATE
GRTG	GRATING
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
H	HIGH
HB	HOSE BIB
HE	HORIZONTAL ELLIPTICAL
HDWL	HEADWALL
HNDRL	HAND RAIL
HORIZ	HORIZONTAL
HP	HIGH POINT
HR	HOUR
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWY	HIGHWAY
HWL	HIGH WATER LINE
HYD	HYDRANT
INCL	INCLUDED
ID	INSIDE DIAMETER
IN	INLET
INSUL	INSULATION
INV	INVERT
IRR	IRRIGATION
JTS	JOINTS
KO	KNOCKOUT
KPL	KICK PLATE
KWY	KEYWAY
L	LEFT OR LITER
LSCAPE	LANDSCAPE(ING)
LF	LINEAR FOOT
LP	LOW POINT
LT	LIGHT
LWL	LOW WATER LEVEL
MAINT	MAINTENANCE
MAN	MANUAL
MATL	MATERIAL
MAX	MAXIMUM
ME	MATCH EXISTING
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPP	OPPOSITE
OPT	OPTIONAL
PC	POINT OF CURVATURE
PCO	PRESSURE CLEAN OUT
PCR	POINT OF CURVE RETURN
PI	POINT OF INTERSECTION
PVI	POINT OF VERTICAL INTERSECTION
PL	PROPERTY LINE
PE	POLYETHYLENE
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PREP	PREPARATION
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE OR PRESSURE RELIEF VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE OR POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
QTY	QUANTITY
R	RIGHT
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RE	REFERENCE
RECT	RECTANGULAR
REINF	REINFORCE (D) (ING) (MENT)
REQD	REQUIRED
ROW	RIGHT OF WAY
SAN	SANITARY
SD	STORM DRAIN
SECT	SECTION
SPD	STANDARD PROCTOR DENSITY
SPEC	SPECIFICATION
SQ	SQUARE
SQ IN	SQUARE INCH
SQ FT	SQUARE FOOT
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SVC	SERVICE
SWMP	STORMWATER MANAGEMENT PLAN
SYM	SYMMETRICAL
TB	THRUST BLOCK
TBC	TOP BACK OF CURB
TBM	TEMPORARY BENCH MARK
TEMP	TEMPORARY
TG	FINISHED GRADE ADJACENT TO TOP OF WALL
THK	THICK
TOB	TOP OF BANK
TOC	TOP OF CONCRETE OR TOP OF CURB
TOS	TOP OF STEP
TOT	TOTAL
TW	TOP OF WALL OR CAP OF WALL
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UGE	UNDERGROUND ELECTRIC
UTIL	UTILITY
VERT	VERTICAL
VC	POINT OF VERTICAL CURVATURE
VCP	VITRIFIED CLAY PIPE
W	WIDE OR WIDTH
W/	WITH
W/O	WITHOUT
WQCE	WATER QUALITY CONTROL ELEVATION
WSE	WATER SURFACE ELEVATION
WW	WASTEWATER
X SECT	CROSS SECTION
XFMR	ELECTRONIC TRANSFORMER
YH	YARD HYDRANT

DESIGN LEGEND

- BENCHMARK
- MANHOLE
- AREA DRAIN
- COMBINATION INLET
- TYPE R INLET
- TYPE 13 FIELD INLET
- FLARED END SECTION W/ RIPRAP
- TEE W/ THRUST BLOCK
- BEND W/ THRUST BLOCK
- END CAP W/ THRUST BLOCK
- GATE VALVE
- REDUCER/INCREASER
- WATER METER
- FIRE HYDRANT
- SD — STORM – 12" AND SMALLER
- STORM – LARGER THAN 12"
- RD — ROOF DRAIN
- TD — TRENCH DRAIN
- UD — UNDERDRAIN
- SS — SANITARY SEWER
- FM — FORCE MAIN
- W — WATER
- NPW — NON POTABLE WATER
- PW — POTABLE WATER
- IRR — IRRIGATION
- IRRIGATION – LARGER THAN 12"
- CATV — CABLE TV
- D — DRAIN
- E — ELECTRIC
- UE — UNDERGROUND ELECTRIC
- OE — OVERHEAD ELECTRIC
- T — TELEPHONE
- FO — FIBER OPTIC
- FUEL — FUEL
- G — GAS
- PVC — PVC PIPE (MISC)

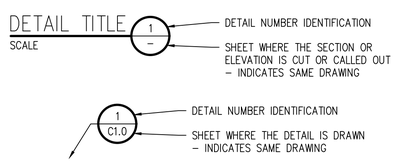
- FENCE
- FLOW LINE OF DITCH OR WASH
- 5.0% — SLOPE ARROW
- +03.54 — PROPOSED SPOT ELEVATION
- +03.3 — EXIST SPOT ELEVATION
- 5220 — EXIST INDEX CONTOUR
- 5221 — EXIST INTERMEDIATE CONTOUR
- 20 — PROPOSED INDEX CONTOUR
- 21 — PROPOSED INTERMEDIATE CONTOUR
- CURB AND GUTTER
- SIGN W/ POST
- SIDEWALK
- CONCRETE PAVING
- HEAVY DUTY ASPHALT PAVING
- LIGHT DUTY ASPHALT PAVING
- GRAVEL
- PROPOSED BUILDING
- BUILDING ACCESS
- RETAINING WALL
- BOULDER/ROCK WALL
- LIMITS OF SAWCUT
- LIMITS OF WORK
- EASEMENT LINE
- PROPERTY LINE
- ADJACENT PROPERTY LINE/ROW
- MATCHLINE

Know what's below. Call before you dig.

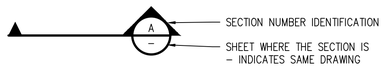
WETLAND LEGEND

WATERS OF THE U.S. | WETLAND

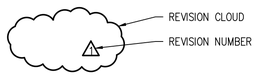
DETAIL TITLE



SECTION CALLOUT



DETAIL MARKER



SURVEY LEGEND

- W — WATER LINE
- WV — WATER VALVE
- W / WM — WATER METER
- FIRE HYDRANT
- SS — SANITARY SEWER LINE
- S — SANITARY SEWER MANHOLE
- SD — STORM DRAINAGE LINE
- ST — STORM DRAINAGE MANHOLE
- CURB INLET
- UE — UNDERGROUND ELECTRICAL LINE
- OE — OVERHEAD ELECTRICAL LINE
- ELECTRICAL POLE
- GUY WIRE
- ELECTRICAL TRANSFORMER
- ER — ELECTRICAL RISER
- EV — ELECTRIC VAULT
- LIGHT POLE
- DECORATIVE LIGHT
- FO — FIBEROPTIC LINE
- T — TELEPHONE LINE
- TR — TELEPHONE RISER
- G — GAS LINE
- INDICATION OF ACCESS
- BUILDING

NOTE: SHADED ITEMS REPRESENT EXIST FEATURES

- BM — BENCHMARK AS DESCRIBED
- FOUND MONUMENT
- FOUND MONUMENT
- TP — TEST CP
- (m) — UTILITY LOCATED FROM MAP
- (AM) — AS MEASURED AT TIME OF SURVEY
- (C) — CALCULATED FROM RECORD AND AS MEASURED INFORMATION
- (P) — PLAT
- (R) — RECORDED
- MB — MAILBOX
- CONCRETE
- EDGE OF ASPHALT
- GRAVEL
- FENCE
- GUARDRAIL
- BOLLARD
- SIGN
- X"/X' — CONIFEROUS TREE (TRUNK DIAMETER/DRIP LINE RADIUS)
- X"/X' — DECIDUOUS TREE (TRUNK DIAMETER/DRIP LINE RADIUS)
- BOULDER

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE CITY OF GRAND JUNCTION, COLORADO DEPARTMENT OF TRANSPORTATION, CITY OF GRAND JUNCTION FIRE PROTECTION REQUIREMENTS, AND APPLICABLE STATE AND LOCAL STANDARDS AND SPECIFICATIONS. THE CONTRACTOR SHALL HAVE IN POSSESSION AT THE JOB SITE AT ALL TIMES ONE (1) SIGNED COPY OF APPROVED PLANS, STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN EMERGENCY ACCESS ROUTES TO THE SITE AND STRUCTURE AT ALL TIMES PER THE APPLICABLE CITY OF GRAND JUNCTION FIRE PROTECTION DISTRICT REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS. NOTIFY ENGINEER OF ANY CONFLICTING STANDARDS OR SPECIFICATIONS. IN THE EVENT OF ANY CONFLICTING STANDARD OR SPECIFICATION, THE MORE STRINGENT OR HIGHER QUALITY STANDARD, DETAIL OR SPECIFICATION SHALL APPLY.
2. THE CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES, STANDARD SPECIFICATIONS, PERMITS, BONDS, ETC., INCLUDING, BUT NOT LIMITED TO A LOCAL AND STATE GROUNDWATER DISCHARGE PERMIT. THE CITY OF GRAND JUNCTION WILL OBTAIN THE MESA COUNTY CONSTRUCTION STORMWATER PERMIT AND COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT (CDPHE) STORMWATER DISCHARGE PERMIT AND WILL TRANSFER THE PERMITS TO THE CONTRACTOR PRIOR TO BEGINNING WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE REQUIRED PARTY (CITY OF GRAND JUNCTION) AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION, PRIOR TO BACKFILLING, AND AS REQUIRED BY JURISDICTIONAL AUTHORITY AND/OR PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL CONTINUE WITH NOTIFICATIONS THROUGHOUT THE PROJECT AS REQUIRED BY THE STANDARDS AND SPECIFICATIONS.
4. THE LOCATIONS OF EXISTING UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION BASED ON INFORMATION BY OTHERS. NOT ALL UTILITIES MAY BE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT SIZE, LOCATION AND TYPE OF ALL EXISTING UTILITIES WHETHER SHOWN OR NOT BEFORE COMMENCING WORK. THE ENGINEER AND/OR OWNER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS SHOWN ON PLANS. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR ANY AND ALL DAMAGES AND COSTS WHICH MIGHT OCCUR BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITY COMPANIES AND DETERMINE THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO PROCEEDING WITH GRADING AND CONSTRUCTION. ALL WORK PERFORMED IN THE AREA OF UTILITIES SHALL BE PERFORMED AND INSPECTED ACCORDING TO THE REQUIREMENTS OF THE UTILITY OWNER. LIKEWISE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAPPING ANY EXISTING UTILITY (INCLUDING DEPTH) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION, AND FOR RELOCATING ENCOUNTERED UTILITIES AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL CONTACT AND RECEIVE APPROVAL FROM CITY OF GRAND JUNCTION AND ENGINEER BEFORE RELOCATING ANY ENCOUNTERED UTILITIES. CONTRACTOR RESPONSIBLE FOR SERVICE CONNECTIONS, AND RELOCATING AND RECONNECTING AFFECTED UTILITIES AS COORDINATED WITH UTILITY OWNER AND/OR ENGINEER, INCLUDING NON–MUNICIPAL UTILITIES (TELEPHONE, GAS, CABLE, ETC., WHICH SHALL BE COORDINATED WITH THE UTILITY OWNER). THE CONTRACTOR SHALL IMMEDIATELY CONTACT ENGINEER UPON DISCOVERY OF A UTILITY DISCREPANCY OR CONFLICT. AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY NOTIFICATION CENTER OF COLORADO (1–800–922–1987, WWW.UNCC.ORG). SEE SURVEY UTILITY LOCATION INFORMATION BELOW.
5. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PREPARE A TRAFFIC CONTROL PLAN FOR OWNER AND/OR CITY APPROVAL AND PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FENCING, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR AGREES TO COMPLY WITH THE PROVISIONS OF THE TRAFFIC CONTROL PLAN AND THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," PART VI, FOR CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL. ALL TEMPORARY AND PERMANENT TRAFFIC SIGNS SHALL COMPLY TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) WITH REGARD TO SIGN SHAPE, COLOR, SIZE, LETTERING, ETC. UNLESS OTHERWISE SPECIFIED. IF APPLICABLE, PART NUMBERS ON SIGNAGE DETAILS REFER TO MUTCD SIGN NUMBERS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS NOR EROSION ON ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. GROUNDWATER TO BE PUMPED SHALL BE TESTED, PERMITTED, AND PUMPED PER THE STATE OF COLORADO AND LOCAL GROUNDWATER DISCHARGING PERMIT REQUIREMENTS.
7. RIM AND GRATE ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. THE CONTRACTOR SHALL ADJUST RIMS AND OTHER IMPROVEMENTS TO MATCH FINAL PAVEMENT AND FINISHED GRADE ELEVATIONS.
8. THE EXISTING AND PROPOSED ELEVATIONS OF FLATWORK, SIDEWALKS, CURBS, THRESHOLDS, PAVING, ETC. AS SHOWN HEREON ARE BASED ON EXTRAPOLATION OF FIELD SURVEY DATA, EXISTING CONDITIONS, AND DATA PROVIDED BY OTHERS. AT CRITICAL AREAS (RIVER CROSSING, BRIDGE CROSSING, BOX CULVERT CROSSINGS) AND SITE FEATURES, CONTRACTOR SHALL HAVE FORMWORK INSPECTED AND APPROVED BY OWNER, OWNER'S REPRESENTATIVE, OR ENGINEER PRIOR TO PLACING CONCRETE. MINOR ADJUSTMENTS, AS APPROVED, TO PROPOSED GRADES, INVERTS, ETC. MAY BE REQUIRED TO PREVENT PONDING OR SLOPE NOT IN CONFORMANCE WITH MUNICIPAL STANDARDS. ALL FLATWORK MUST PREVENT PONDING AND PROVIDE POSITIVE DRAINAGE AWAY FROM EXISTING AND PROPOSED BUILDINGS, WALLS, ROOF DRAIN OUTFALLS, ACROSS DRIVES AND WALKS, ETC., TOWARDS THE PROPOSED INTENDED DRAINAGE FEATURES AND CONVEYANCES.
9. ANY EXISTING MONITORING WELLS, CLEANOUTS, VALVE BOXES, ETC. TO BE PROTECTED AND TO REMAIN IN SERVICE. IF FEATURES EXIST, EXTEND OR LOWER TO FINAL SURFACE WITH LIKE KIND CAP WITH STANDARD CAST ACCESS LID WITH SAME MARKINGS. IN LANDSCAPED AREAS PROVIDE A CONCRETE COLLAR (18"x18"x6" THICK) AT ALL EXISTING AND PROPOSED MONITORING WELLS, CLEANOUTS, VALVE BOXES, ETC.
10. PIPE LENGTHS AND HORIZONTAL CONTROL POINTS SHOWN ARE FROM CENTER OF STRUCTURES, END OF FLARED END SECTIONS, ETC. SEE STRUCTURE DETAILS FOR EXACT HORIZONTAL CONTROL LOCATION. CONTRACTOR IS RESPONSIBLE FOR ADJUSTING ACTUAL PIPE LENGTHS TO ACCOUNT FOR STRUCTURES AND LENGTH OF FLARED END SECTIONS.
11. ALL SURPLUS MATERIALS, TOOLS, AND TEMPORARY STRUCTURES, FURNISHED BY THE CONTRACTOR, SHALL BE REMOVED FROM THE PROJECT SITE BY THE CONTRACTOR. ALL DEBRIS AND RUBBISH CAUSED BY THE OPERATIONS OF THE CONTRACTOR SHALL BE REMOVED, AND THE AREA OCCUPIED DURING CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ITS ORIGINAL CONDITION, WITHIN 48 HOURS OF PROJECT COMPLETION, UNLESS OTHERWISE DIRECTED BY THE MUNICIPALITY OR OWNER'S REPRESENTATIVE.
12. THE CONTRACTOR IS REQUIRED TO PROVIDE AND MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE LOCAL JURISDICTION, THE STATE OF COLORADO, THE M–STANDARD PLANS OF THE COLORADO DEPARTMENT OF TRANSPORTATION, AND THE APPROVED EROSION CONTROL PLAN. JURISDICTIONAL AUTHORITY MAY REQUIRE THE CONTRACTOR TO PROVIDE ADDITIONAL EROSION CONTROL MEASURES AT THE CONTRACTOR'S EXPENSE DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE PLANS DO NOT FUNCTION AS INTENDED. THE CONTRACTOR IS RESPONSIBLE FOR PROHIBITING SILT AND DEBRIS LADEN RUNOFF FROM LEAVING THE SITE, AND FOR KEEPING ALL PUBLIC AREAS FREE OF MUD AND DEBRIS. THE CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING FINAL GRADES AND FOR REMOVING ACCUMULATED SEDIMENTATION FROM ALL AREAS INCLUDING SWALES AND DETENTION/WATER QUALITY AREAS. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL MEASURES AND REPAIR AREAS AS REQUIRED AFTER VEGETATION IS ESTABLISHED AND ACCEPTED BY OWNER AND MUNICIPALITY.
13. PROTECT ALL TREES AND VEGETATION. PLACE CONSTRUCTION FENCING AT DRIP LINE OF TREES AND PLANTS NEAR THE WORK ZONE. DEEP WATER TREES WEEKLY AND INCLUDE THESE COSTS IN EROSION CONTROL BID ITEM. HAND EXCAVATION REQUIRED AT ROOT ZONES WHERE PROPOSED PAVING OR UTILITY WORK IS WITHIN DRIPLINE OF TREES.
14. LOCATIONS OF CLEANOUTS, LIGHTS, SIGNAGE, JUNCTION BOXES, AND OTHER SIGNIFICANT SITE FEATURES TO BE STAKED FOR ENGINEER AND OR OWNER APPROVAL PRIOR TO WORK. CLEANOUTS, JUNCTION BOXES, AND ADJACENT GRADES TO BE RAISED ONE–HALF INCH AT ASPHALT/CONCRETE (OR 1" AT LANDSCAPING) TO PROVIDE POSITIVE DRAINAGE AWAY FROM FEATURES.
15. SURVEY INFORMATION:
    - 15.1. BENCHMARK INFORMATION: TOPOGRAPHIC INFORMATION WAS PROVIDED BY HIGH DESERT SURVEYING, LLC FOR THE COLORADO RIVERBED PORTION OF THE SITE AND THE CITY OF GRAND JUNCTION FOR THE AREAS NORTH AND SOUTH OF THE RIVER. THE CITY OF GRAND JUNCTION COMBINED THE TWO SURVEYS INTO ONE DRAWING. SEE "EXISTING TOPO" DATED 9/2/2020. PROJECT BENCHMARK ELEVATION: 4521.47' AT MESA COUNTY MONUMENT 1654. THE DATUM IS NAD83 PER SURVEY. COORDINATE AND VERIFY ALL VERTICAL AND HORIZONTAL DATA SHOWN IN SURVEY AND REPORT ANY IRREGULARITIES OR DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
    - 15.2. BASIS OF BEARINGS: SEE PLANS.
    - 15.3. HORIZONTAL CONTROL INFORMATION: HORIZONTAL CONTROL COORDINATES ARE BASED ON THE REFERENCED SURVEY AND ARE PROVIDED BY THE FOLLOWING POINTS AS SHOWN ON THE PLANS:

CP–1	N50460.81	E63630.56	ELEV 4512.01
CP–2	N50626.02	E63837.29	ELEV 4510.98
CP–3	N51044.98	E64497.99	ELEV 4510.78
CP–4	N51158.68	E64779.36	ELEV 4513.17
CP–5	N51519.155	E65270.25	ELEV 4518.04
CP–6	N52337.24	E64914.28	ELEV 4517.61

    - 15.4 SURVEY UTILITY LOCATION INFORMATION PER THE SURVEYOR: SUBSURFACE UTILITIES ARE SHOWN IN APPROXIMATE HORIZONTAL AND VERTICAL LOCATIONS CONSISTENT WITH ASCE 38–02 QUALITY LEVEL "B" (INFORMATION OBTAINED BY THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND HORIZONTAL POSITION OF VIRTUALLY ALL UTILITIES WITHIN THE PROJECT LIMITS. THE INFORMATION OBTAINED IN THIS MANNER IS SURVEYED TO PROJECT CONTROL.) AND QUALITY LEVEL "C" (INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE–GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D; INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS), AND BASED ON FIELD MEASUREMENTS PROVIDED BY THE OWNER AND THE CONTRACTOR. SUBSURFACE UTILITIES ARE NOT DEPICTED TO THE EXTENT SET FORTH IN ASCE 38–02 QUALITY LEVELS "A" (INFORMATION OBTAINED THROUGH THE NONDESTRUCTIVE EXPOSURE OF UNDERGROUND UTILITIES, AND ALSO PROVIDES THE TYPE, SIZE, CONDITION, MATERIAL AND OTHER CHARACTERISTICS OF UNDERGROUND FEATURES.). TO THE EXTENT DEEMED NECESSARY FOR THE PROTECTION OF PERSONS AND PROPERTY, POTHOLING OR OTHER PRECISE MAPPING MAY BE COMPLETED TO CONFIRM THE EXACT LOCATION OF ANY SUBSURFACE UTILITIES. NOTIFY OWNER AND ENGINEER WITH ALL UTILITY INFORMATION PRIOR TO CONSTRUCTION.VISIT HTTPS://WWW.FHWA.DOT.GOV/PROGRAMADMIN/SUEINDEX.CFM FOR MORE INFORMATION.
16. THE CONTRACTOR AT THE CONTRACTORS EXPENSE SHALL FURNISH THE OWNER AND ENGINEER OF RECORD A COMPLETE SET OF CONSTRUCTION RECORD DRAWINGS ("AS–BUILTS") FOR THE CONSTRUCTED IMPROVEMENTS. THE AS–BUILT SET SHALL SHOW SUFFICIENT DIMENSION TIES TO PERMANENT SURFACE FEATURES OR NORTHING/EASTING POINTS FOR ALL BURIED FACILITIES TO ALLOW FOR FUTURE LOCATING. THE AS–BUILT SET SHALL SHOW AS–BUILT CONTOURS AND ELEVATIONS OF ASPHALT AND CONCRETE FLATWORK, FLOWLINES, GRADE BREAKS, STAIRS, CROSS–SLOPES, HIGH AND LOW POINTS, AND ADDITIONAL ELEVATIONS TO DEMONSTRATE IMPROVEMENTS WERE CONSTRUCTED PER PLANS. THE AS–BUILT SET SHALL SHOW ELEVATIONS OF ALL DETENTION/WATER QUALITY FACILITIES, INCLUDING BUT NOT LIMITED TO BERMS, SPILLWAYS, BASIN BOTTOM, PIPE INVERTS, AND CONTROL STRUCTURE FEATURES (AS SURVEYED AND STAMPED BY A CERTIFIED P.L.S.). THE AS–BUILT SET SHALL ALSO INCLUDE ELEVATIONS OF MANHOLES, PIPES, INLETS, GRATES, AND SIZES OF ALL UTILITIES. THE AS–BUILT SET SHALL SHOW ANY AND ALL VARIATIONS FROM THE APPROVED PLAN. ENGINEER WILL PRODUCE FINAL RECORD DRAWINGS.

GEOTECH LEGEND

- Water Level Reading at time of drilling.
- Water Level Reading after drilling.

NOTES:
Soils profile provided for illustration purposes only.
Soils between borings may differ

TOPSOIL | NATIVE – SAND | NATIVE – CLAY | BEDROCK – CLAYSTONE | BEDROCK – SHALE

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NO.	DATE	DESD	DWN	REVISION DESCRIPTION

DESIGNED BY:	CDB
DRAWN BY:	MHT/JGJ
CHECKED BY:	JJM
JOB #:	1071.5e
DATE:	APRIL 2022

CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

LEGEND, NOTES, AND ABBREVIATIONS

SHEET NO.
G0.1

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SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNITS
DIVISION 00 AND 01 – GENERAL CONDITIONS AND REQUIREMENTS		
MOBILIZATION/DEMOBILIZATION	1	LS
CONSTRUCTION SURVEYING	1	LS
DEWATERING	1	LS
TRAFFIC CONTROL	1	LS
DIVISION 02 – SITEWORK		
TEMPORARY EROSION AND SEDIMENT CONTROL	1	LS
POTHOLING UTILITIES	1	LS
CLEAR–CUTTING ROW IN WALKER SWA	0.4	AC
PERSIGO WASH TEMPORARY CROSSING	1	LS
PERSIGO WASH TEMPORARY DIVERSION	1	LS
COFFER DAM (COLORADO RIVER)	1	LS
ROCK EXCAVATION	800	CY
12" HDPE	4845	LF
CONCRETE ENCASEMENT – SINGLE PIPE	958	LF
CONCRETE ENCASEMENT – DUAL PIPES	1066	LF
15" PVC (SDR 35)	45	LF
MANHOLE WITH PROTECTIVE COATING	1	EA
CONCRETE CUTTING, PATCHING, AND DEBRIS REMOVAL	320	SF
FLOWFILL IN CDOT ROW	20	CY
REMOVAL OF TREES	6	EA
SEEDING AND RESTORATION	6	AC
DIVISION 15 – MECHANICAL		
CONNECT TO LIFT STATION	1	LS
12" MAGNETIC FLOW METER	1	EA
12" PLUG VALVE	1	EA
12" DISMANTLING JOINT/COUPLING	1	EA
8' CONCRETE VAULT	1	EA
PIPE SUPPORTS	1	LS

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CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

SUMMARY OF QUANTITIES

SHEET NO.
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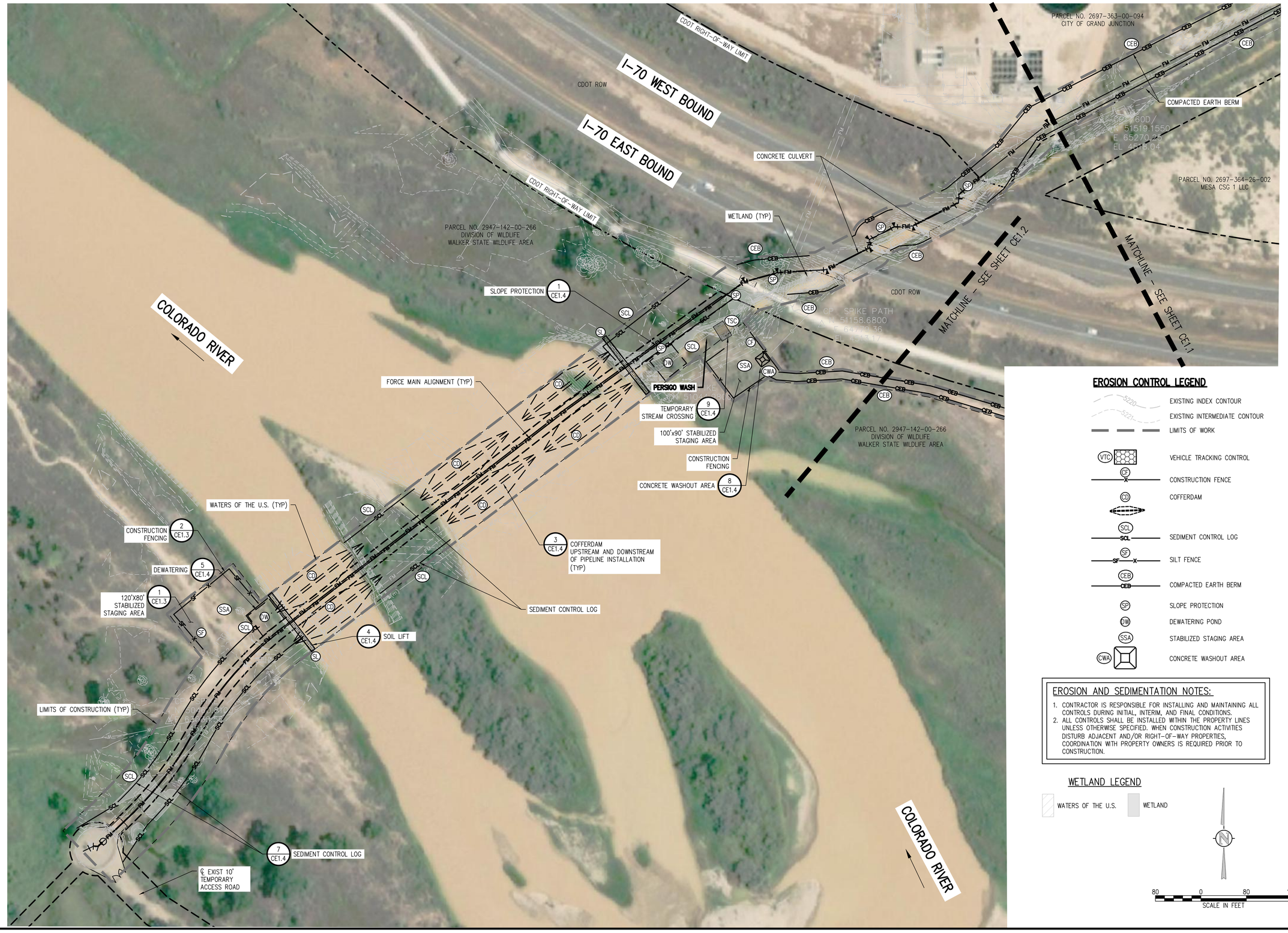

EROSION CONTROL LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- LIMITS OF WORK
- VTC — VEHICLE TRACKING CONTROL
- CF — CONSTRUCTION FENCE
- CD — COFFERDAM
- SCL — SEDIMENT CONTROL LOG
- SF — SILT FENCE
- CEB — COMPACTED EARTH BERM
- SP — SLOPE PROTECTION
- DW — DEWATERING POND
- SSA — STABILIZED STAGING AREA
- CWA — CONCRETE WASHOUT AREA

EROSION AND SEDIMENTATION NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL CONTROLS DURING INITIAL, INTERIM, AND FINAL CONDITIONS.
2. ALL CONTROLS SHALL BE INSTALLED WITHIN THE PROPERTY LINES UNLESS OTHERWISE SPECIFIED. WHEN CONSTRUCTION ACTIVITIES DISTURB ADJACENT AND/OR RIGHT-OF-WAY PROPERTIES, COORDINATION WITH PROPERTY OWNERS IS REQUIRED PRIOR TO CONSTRUCTION.

WETLAND LEGEND

WATERS OF THE U.S. | WETLAND

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CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

EROSION CONTROL PLAN

SHEET NO.
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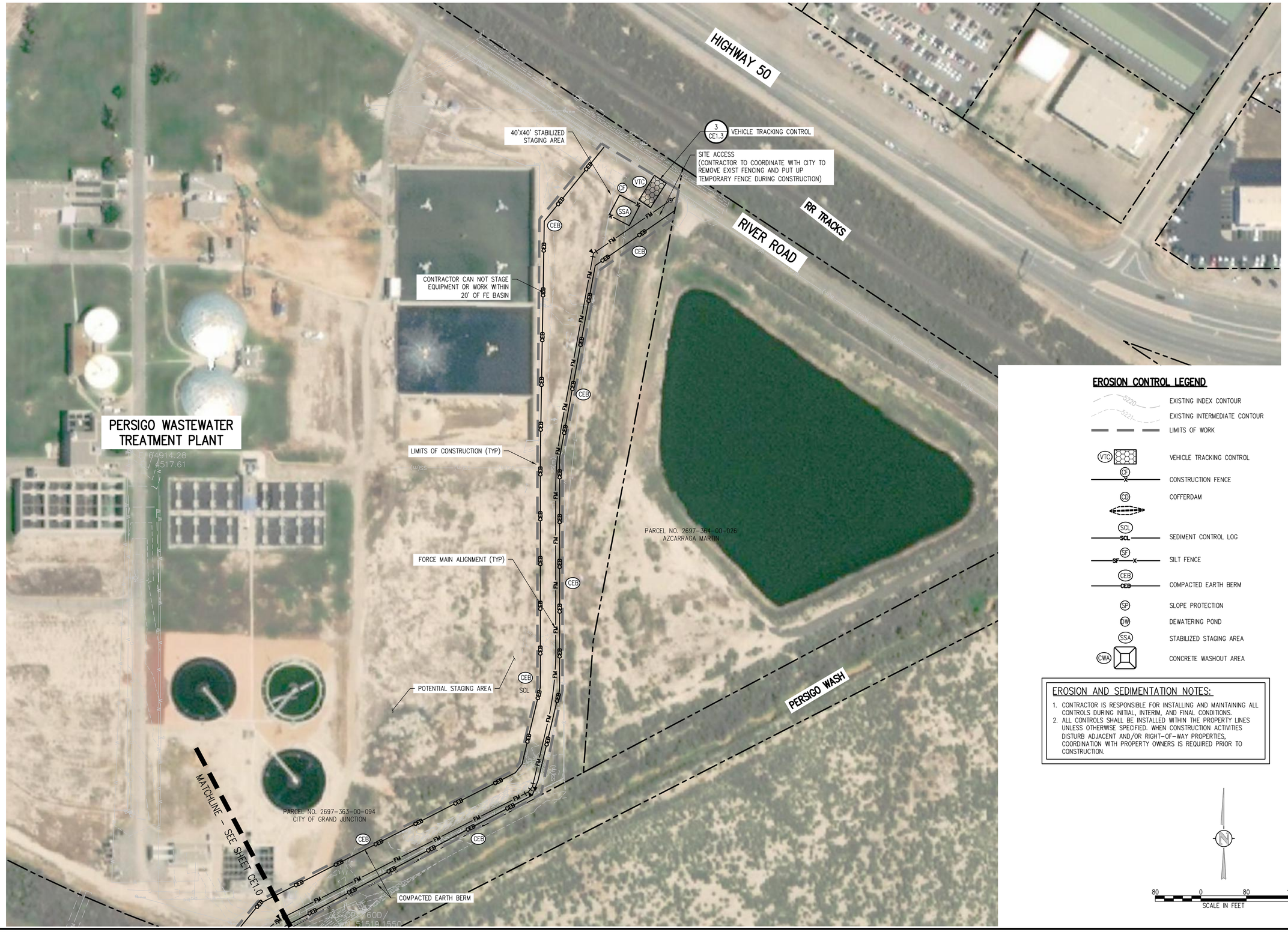

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GRAND JUNCTION, COLORADO

EROSION CONTROL PLAN

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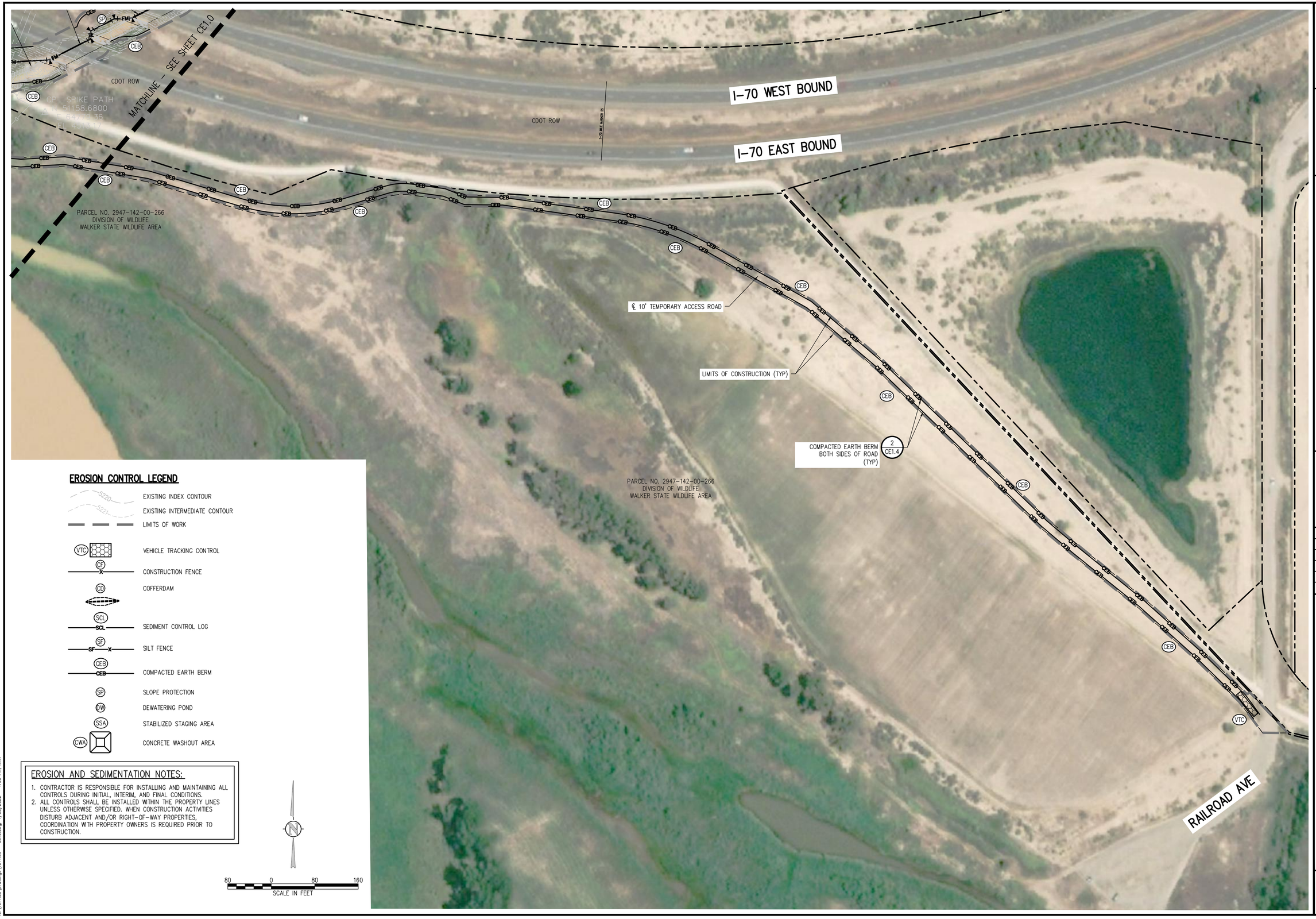

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CITY OF GRAND JUNCTION
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GRAND JUNCTION, COLORADO

EROSION CONTROL PLAN

SHEET NO.
CE1.2

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STORMWATER MANAGEMENT PLAN (SWMP)

THIS STORMWATER MANAGEMENT PLAN IS TO BE RETAINED AND MAINTAINED ONSITE INCLUDING FINAL LANDSCAPING PLANS AND ANY OTHER EROSION CONTROL DOCUMENTATION. A SWMP ADMINISTRATOR WILL BE DESIGNATED BY THE CONTRACTOR AND IS RESPONSIBLE FOR DEVELOPING, IMPLEMENTING, MAINTAINING, AND REVISING THIS SWMP. THE SWMP ADMINISTRATOR IS THE CONTACT FOR ALL SWMP-RELATED ISSUES AND IS RESPONSIBLE FOR ITS ACCURACY, COMPLETENESS, AND IMPLEMENTATION. THE FOLLOWING HAS BEEN DESIGNATED AS THE SWMP ADMINISTRATOR FOR THIS PROJECT:

NAME: _____

CONTACT INFO: _____

_____

THE PROJECT SITE INCLUDES A PORTION OF THE CITY OF GRAND JUNCTION'S PERSIGO WASTEWATER TREATMENT PLANT AND EXTENDS TO THE SOUTHWEST UNDER INTERSTATE-70 (I-70) AND THE COLORADO RIVER TO THE CITY'S EXISTING TIARA RADO LIFT STATION. AT APPROXIMATELY 39° 6'47.06"N LATITUDE, 108°39'25.89"W LONGITUDE. THE PROJECT INVOLVES THE INSTALLATION OF A NEW 12" SANITARY SEWER FORCE MAIN. AN EXISTING 12" FORCE MAIN ALREADY EXTENDS FROM THE TIARA RADO LIFT STATION TO THE PERSIGO TREATMENT PLANT. THIS FORCE MAIN WAS INSTALLED BETWEEN 1982 AND 1984 AND THE EXACT CONDITION IS UNKNOWN. THE NEW LINE WILL ASSURE THE CITY HAS A RELIABLE FORCE MAIN AND WILL PROVIDE FOR FUTURE GROWTH OF THE CITY. THE TOTAL DISTURBANCE AREA DURING CONSTRUCTION IS ESTIMATED TO BE APPROXIMATELY 13.14 ACRES. THIS AREA WAS CALCULATED FROM THE LIMITS OF CONSTRUCTION SHOWN ON THE EROSION CONTROL PLAN. THE DISTURBANCE AREA IS SUBJECT TO CHANGE BASED ON THE CONTRACTORS CONSTRUCTIONS MEANS AND METHODS. NO CONSTRUCTION ACTIVITIES SHALL OCCUR OFFSITE OR OUTSIDE OF THE CONSTRUCTION LIMITS. THE SEQUENCE OF CONSTRUCTION STARTS IS AS FOLLOWS:

PHASE	ESTIMATED	ACTUAL
CONSTRUCTION START	MONTH, YEAR	_____
ACCESS ROAD & CLEAR/GRUB PIPELINE ALIGNMENT	MONTH, YEAR	_____
FORCE MAIN CONSTRUCTION	MONTH, YEAR	_____
SITE RESTORATION	MONTH, YEAR	_____

THE EXISTING SITE CONSISTS OF DEVELOPED LAND, CONCRETE AND ASPHALT PAVEMENT, TREES AND SHURBS, WATER, WETLAND VEGETATION ALONG THE COLORADO RIVER BANKS AND PERSIGO WASH, NATIVE GRASSLAND, AND IS APPROXIMATELY 60% COVERED WITH VEGETATIVE GROUND COVER.
THE ESTIMATED HISTORIC AND DEVELOPED RUNOFF COEFFICIENTS ARE .25.

ONSITE AND OFFSITE RUNOFF FLOWS ARE FROM AREAS UPSTREAM OF THE COLORADO RIVER AND PERSIGO WASH. THERE ARE NO PROPOSED PERMANENT DRAINAGE IMPROVEMENTS. THE DISTURBANCE SITE WILL BE RESTORED TO PRE-FORCE MAIN INSTALLATION CONDITIONS.

SEDIMENT EXPOSED DURING CLEARING/GRUBBING, EXCAVATION AND BUILDING OF TEMPORARY COFFERDAMS SHOULD BE CONSIDERED THE BIGGEST POLLUTANT SOURCE DURING CONSTRUCTION. STAGING AREAS HAVE BEEN SHOWN ON THE EROSION CONTROL PLANS FOR REFERENCE ONLY. THE CONTRACTOR IS EXPECTED TO USE THESE SITES TO TEMPORARILY STORE EQUIPMENT, PIPE AND OTHER MATERIALS FOR THE INSTALLATION OF THE FORCE MAIN.

BEST MANAGEMENT PRACTICES FOR STORMWATER MANAGEMENT
NON STRUCTURAL BMPS WILL BE IMPLEMENTED TO THE MAXIMUM EXTENT POSSIBLE. THE UTILIZATION OF NON STRUCTURAL BMPS WILL BE AN ONGOING PROCESS DIRECTED AT PREVENTING EROSION. THE NON STRUCTURAL BMPS WILL RECEIVE CONTINUOUS EMPHASIS THROUGHOUT CONSTRUCTION BECAUSE THEY AVERT PROBLEMS BEFORE THEY OCCUR AND REDUCE THE NEED FOR STRUCTURAL BMPS. NON STRUCTURAL BMPS WILL CONSIST PRIMARILY OF PRESERVATION OF EXISTING MATURE VEGETATION AND TREES, PLANNING AND SCHEDULING CONSTRUCTION ACTIVITIES AIMED AT ACHIEVING THE GOAL OF MINIMIZING EROSION. FURTHERMORE, CONSTRUCTION PERSONNEL WILL BE INSTRUCTED AND SUPERVISED IN CONSTRUCTION METHODS CONSISTENT WITH EROSION PREVENTION PRACTICES.

PLANNED STRUCTURAL BMPS FOR EROSION AND SEDIMENT CONTROL ARE SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLAN. IMPLEMENTING THESE MEASURES SHOULD MINIMIZE NUISANCE SILT AND SEDIMENTATION EXITING THE SITE.

APPLICATION OF THESE BMPS FOR STORMWATER MANAGEMENT ARE FOR CONSTRUCTION PERIODS AND ARE CONSIDERED TEMPORARY. POST-DEVELOPMENT STORMWATER MANAGEMENT IS PROVIDED THROUGH THE GRADING AND SEEDING OF THE SITE.

CONSTRUCTION FENCE (CF):
CONSTRUCTION FENCING WILL BE INSTALLED TO LIMIT ACCESS TO THE CONSTRUCTION SITE BY THE GENERAL PUBLIC AND LIMIT ACTIVITY BY THE CONTRACTOR(S) TO WITHIN THE DESIGNATED DISTURBANCE AREA.

VEHICLE TRACKING CONTROL (VTC):
A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED AT THE TWO PROPOSED ENTRANCE TO THE SITE (AS SHOWN ON THE EROSION CONTROL PLANS) THE CONSTRUCTION ACCESS AND PARKING WILL BE GRADED AND COVERED WITH A CRUSHED STONE BASE COURSE DURING CONSTRUCTION. THE VEHICLE TRACKING CONTROL WILL BE RELOCATED WITH THE CONSTRUCTION ACCESS AS NECESSARY.

SILT FENCING (SF) AND SEDIMENT CONTROL LOGS (SCL):
SILT FENCING AND SEDIMENT CONTROL LOGS SHALL BE INSTALLED WITH RESPECT TO PROPOSED DRAINAGE PATTERNS. SILT FENCE AND SEDIMENT CONTROL LOGS SHALL BE CONSTRUCTED ALONG ANY DRAINAGE AREAS SUBJECT TO EROSION. THE SILT FENCING AND SEDIMENT CONTROL LOGS SHALL BE INSTALLED AT THE DOWNHILL SIDE OF THE EXISTING SLOPES ACROSS THE SITE AND AT ALL POINT DISCHARGE AREAS WHETHER SHOWN OR NOT, SILT FENCE AND SEDIMENT CONTROL LOGS SHALL BE MAINTAINED AS NEEDED THROUGHOUT THE CONSTRUCTION PROCESS. THE TEMPORARY SILT FENCE AND SEDIMENT CONTROL LOGS WILL REMAIN UNTIL THE FORCE MAIN PIPE INSTALLATION IS COMPLETED AND GROUND COVER IS EFFECTIVE.

COMPACTED EARTH BERM (CEB):
THE CITY OF GRAND JUNCTION WOULD PREFER THE CONTRACTOR USE COMPACTED EARTH BERMS WITHIN CDOT RIGHT-OF-WAY, CITY PROPERTY, AND ALONG THE EXISTING ACCESS ROAD SHOWN ON SHEET CE1.2. THE BERMS WILL REMAIN UNTIL THE FORCE MAIN PIPE INSTALLATION IS COMPLETE AND THE CONTRACTOR NO LONGER NEEDS ACCESS TO FORCE MAIN INSTALLATION SITES.

DEWATERING OPERATIONS (DW) AND TEMPORARY DIVERSION METHODS (TDM):
THE CONTRACTOR WILL NEED TO PUMP AND/OR DIVERT SURFACE AND GOUNDWATER DURING THE EXCAVATION AND INSTALLATION OF THE FORCE MAIN. OPEN CUTTING A TRENCH IS THE PREFERRED PRACTICE FOR THIS PROJECT. THIS WILL OCCUR IN THE COLORADO RIVER CHANNEL, PERSIGO WASH AND OTHER AREAS WITH SURFACE WATER OR SHALLOW GROUNDWATER LEVELS. THE EROSION CONTROL PLAN INCLUDES POTENTIAL SITES FOR DEWATERING PITS AND DEPICTS THE INSTALLATION OF COFFER DAMS ACROSS THE COLORADO RIVER AS POSSIBLE DIVERSION METHODS.

DUST CONTROL MEASURES:
DISTURBED AREAS NOT YET READY TO BE SEEDED, LANDSCAPES, PAVED, OR OTHERWISE STABILIZED SHALL BE WATERED, OR RIPPED AS NECESSARY TO PRECLUDE VISIBLE DUST EMISSIONS.

ITEMS ARE SCHEDULED TO BE IMPLEMENTED ACCORDING TO THE CONSTRUCTION SCHEDULE. AS WORK PROCEEDS, IMPLEMENTATION OF INDIVIDUAL BMPS IS TO COINCIDE WITH THE CONSTRUCTION THEREBY MINIMIZING THE EXPOSURE OF UNPROTECTED AREAS. THE SILT FENCE, SEDIMENT CONTROL LOGS, AND GRAVELING OF THE CONSTRUCTION ENTRANCE WILL BE PERFORMED WHEN THE GRADING BEGINS. THE STRUCTURAL BMPS THAT DO NOT BECOME PART OF THE PERMANENT STORMWATER MANAGEMENT PLAN ARE TO BE REMOVED, AS THE PAVING, LANDSCAPING, AND OTHER PERMANENT GROUNDCOVER INSTALLATIONS ARE COMPLETED. FUGITIVE DUST EMISSIONS RESULTING FROM GRADING ACTIVITIES AND/OR WIND SHALL BE CONTROLLED USING THE BEST AVAILABLE CONTROL TECHNOLOGY AS DEFINED BY THE COLORADO DEPARTMENT OF HEALTH AT THE TIME OF GRADING. THE STRUCTURAL BMPS ARE TO BE REMOVED, AS THE PERMANENT LANDSCAPING INSTALLATIONS ARE COMPLETED.

THE EROSION AND SEDIMENT CONTROL PLAN MAY BE MODIFIED BY THE (DEPARTMENT OF HIGHWAYS AND TRANSPORTATION, OWNER'S ENGINEER, COUNTY ENGINEERING INSPECTORS, OR CITY OF GRAND JUNCTION OR ITS AUTHORIZED REPRESENTATIVE AS FIELD CONDITIONS WARRANT.

TEMPORARY AND PERMINENT SEEDING AND MULCHING:
ALL SEEDS FURNISHED SHALL BE FREE FROM NOXIOUS SEEDS (SUCH AS RUSSIAN OR CANADIAN THISTLE, COURSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAPWEED, AND LEAFY SPURGE) THE FORMULA USED FOR DETERMINING THE QUALITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS). SEEDING RECOMMENDATIONS ARE ADAPTED FROM THE BUREAU OF LAND MANAGEMENT'S GRAND JUNCTION FIELD OFFICE SEED MENU RECOMMENDATIONS (BLM 2012) PROVIDED BELOW, BUT MAY BE MODIFIED WITH THE OWNER'S APPROVAL TO MAKE THE BEST USE OF EXISTING CLEARINGS AND GRUBBINGS:

SPECIES	COMMON NAME	LBS/ACRE
ACHNATHERUM (ORYZOPSIS) HYMENOIDES	INDIAN RICEGRASS	3.7
SPOROBOLUS CRYPTANDRUS	SAND DROPSEED	0.1
ATRIPLEX CANESCENS	4-WING SALTBRUSH	2.7
ATRIPLEX CONFERTIFOLIA	SHADSCALE	2.0
AT LEAST TWO OF THE FOLLOWING:		
LEYMUS SALINUS	SALINA WILDRYE	1.0
SPOROBOLUS AIROIDES	ALKALI SACATON	1.0
PASCOPYRUM (AGROPYRON) SMITHII	WESTERN WHEATGRASS	1.5
AND AT LEAST ONE OF THE FOLLOWING:		
ELYMUS ELYMOIDES, SITANION HYSTRIX	BOTTLEBRUSH SQUIRRELTAIL	2.0
PLEURAPHIS JAMESII	GALLETA	1.0
ARISTIDA PURPUREA	PURPLE THREE-AWN	1.0
TOTAL:		MIN-11.5 MAX 13.0

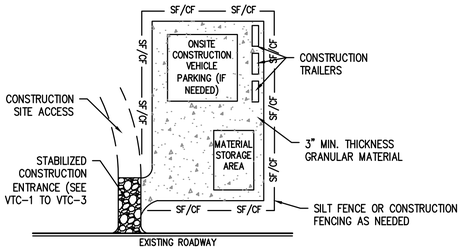
SEEDING APPLICATION: DRILL SEED 0.25 INCH TO 0.5 INCH INTO SOIL. IN SMALL AREAS NOT ACCESSIBLE TO DRILL, HAND BROADCAST OR HYDROSEED AT DOUBLE THE RATE AND RAKE 0.25 INCH INTO THE SOIL.
MULCHING APPLICATION: APPLY MINIMUM OF 2 TONS OF CERTIFIED WEED FREE HAY OR 2 ½ TONS OF CERTIFIED WEED FREE STRAW PER ACRE AND MECHANICALLY CRIMP IT INTO THE SOIL IN COMBINATION WITH AN ORGANIC MULCH TACKIFIER.

PERMANENT STABILIZATION MEASURES:
STREAMBANK STABILIZATION WILL BE NECESSARY WHERE THE FORCE MAIN INSTALLATION OCCURS AT THE VARIOUS STREAMBANK CROSSINGS. THIS COULD INCLUDE GRADING, SEEDING, ROLLED EROSION CONTROL PRODUCTS, RIPRAP, LIVE STAKING, OR OTHER APPROPRIATE STABILIZATION MEASURES.

MATERIALS AND SPILL PREVENTION:
THE CONTRACTOR WILL STORE CONSTRUCTION MATERIALS AND EQUIPMENT IN CONFINED AREAS ON SITE FROM WHICH RUNOFF WILL BE CONTAINED AND FILTERED. MATERIALS WILL BE STORED OFF THE GROUND AND PROTECTED FROM THE WEATHER BY A COVER OR STORED IN A CONTAINER SUCH AS A VAN OR TRAILER. AN EARTHEN DIKE WILL BE CONSTRUCTED AROUND THE PERIMETER OF THE FUEL STORAGE AREA TO PREVENT MATERIALS FROM CONTACT WITH SURFACE RUNOFF. EQUIPMENT MAINTENANCE WILL BE PERFORMED IN A DESIGNATED AREA AND STANDARD MAINTENANCE PROCEDURES, SUCH AS THE USE OF DRIP PANS, WILL BE USED TO CONTAIN PETROLEUM PRODUCTS.

INSPECTION AND MAINTENANCE:
THE EROSION CONTROL MEASURES WILL BE INSPECTED DAILY DURING CONSTRUCTION BY THE CONTRACTOR AND AFTER EACH RAIN EVENT. ALL INSPECTIONS SHALL BE DOCUMENTED AND SHALL INCLUDE THE DATE OF INSPECTION, ANY INCIDENCE OF NON-COMPLIANCE, SIGNED CERTIFICATION THAT THE SITE IS IN COMPLIANCE, AND ANY NOTES, DRAWINGS, MAPS, ETC. PERTAINING TO REPAIRS. COPIES OF ALL DOCUMENTATION SHALL BE DISTRIBUTED TO THE CITY ON A REGULAR BASIS AS SPECIFIED BY THE CITY. SILT FENCE AND STRAW BALE BARRIERS WILL BE CHECKED FOR UNDERMINING AND BYPASS AND REPAIRED OR EXPANDED AS NEEDED. SEDIMENT SHOULD BE REMOVED FROM INLET FILTERS AND SILT FENCING BEFORE ONE HALF OF THE DESIGN DEPTH HAS BEEN FILLED. SEDIMENTS DEPOSITED IN THE PUBLIC RIGHTS-OF-WAY WILL BE REMOVED IMMEDIATELY. THE TEMPORARY VEGETATION OF BARE SOILS WILL BE CHECKED REGULARLY AND AREAS WHERE IT IS LOST OR DAMAGED WILL BE RESEEDED. AT MINIMUM THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL BMPS EVERY 14 DAYS AND AFTER SIGNIFICANT PRECIPITATION OR SNOWMELT EVENTS. INSTALLATIONS AND MODIFICATIONS AS REQUIRED BY THE CITY WILL BE IMPLEMENTED WITHIN 48 HOURS OF NOTIFICATION. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL MEASURES AND REPAIR AREAS AS REQUIRED AFTER VEGETATION IS ESTABLISHED AND ACCEPTED BY THE CITY.

FINAL STABILIZATION AND LONG-TERM STORMWATER QUALITY:
FINAL STABILIZATION IS REACHED WHEN ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH A DENSITY OF AT LEAST 70% OR PRE-DISTURBANCE LEVELS OR EQUIVALENT PERMANENT, EROSION REDUCTION METHODS HAVE BEEN EMPLOYED. FINAL STABILIZATION WILL BE ACHIEVED USING NATIVE SEEDING, PERMANENT BMP'S, AND OTHER METHODS. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL STABILIZATION REGARDLESS OF ACCEPTANCE BY THE CITY.



SSA-1. STABILIZED STAGING AREA

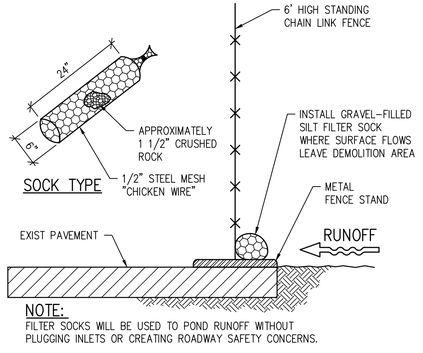
STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF STAGING AREA(S)
   -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTIONS .
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMIT TO SILT FENCE AND CONSTRUCTION FENCING.

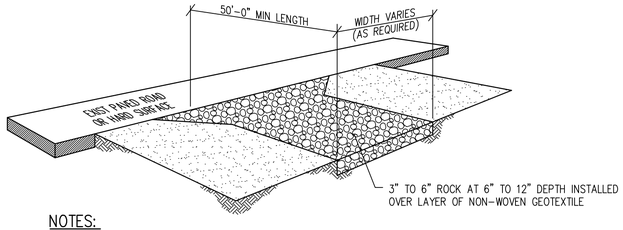
STABILIZED STAGING AREA NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATION CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

SSA STABILIZED STAGING AREA — NTS — 1 / CE1.0



CF CONSTRUCTION FENCE W/ SILT BARRIER DETAIL — NTS — 2 / CE1.0



NOTES:
1. VEHICLE TRACKING CONTROL PADS SHALL BE INSTALLED AT ALL INGRESS/EGRESS POINTS WHERE VEHICULAR ACCESS TRANSITIONS FROM PAVED SURFACES TO DISTURBED SURFACES.
2. THE VTC PAD SHALL CONSIST OF HARD, ANGULAR, DENSE, AND DURABLE STONE. ROUNDED STONE, BOULDERS, RECYCLED ASPHALT, AND RECYCLED CONCRETE ARE NOT ACCEPTABLE.
3. ANY CRACKED OR DAMAGED CURB AND/OR GUTTER SHALL BE REPLACED BY THE CONTRACTOR.
4. PAD WILL BE REPAIRED AND REFRESHED AS NEEDED TO MAINTAIN FUNCTION AND INTEGRITY.
5. VTC PADS SHALL BE INSTALLED AT ALL CONCRETE WASHOUT AREAS AND AT STABILIZED STAGING/STORAGE AREAS.

VTC VEHICLE TRACKING CONTROL DETAIL — NTS — 3 / CE1.0

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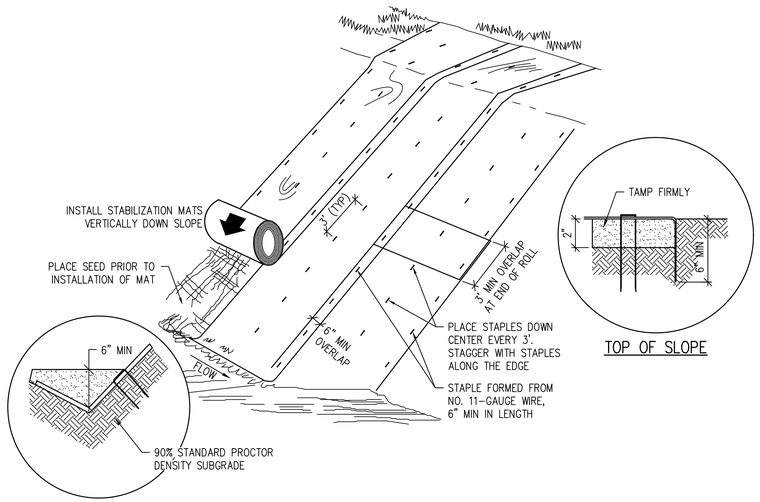
CHECKED BY:	JJM
JOB #:	1071.5e
DATE:	APRIL 2022

CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

EROSION CONTROL NOTES AND DETAILS

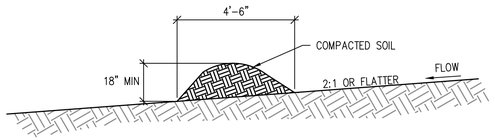
SHEET NO.
CE1.3



TOE OF SLOPE

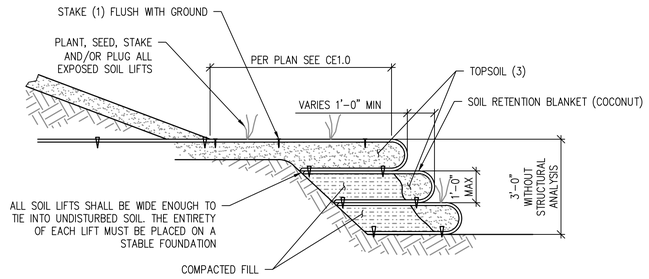
TOP OF SLOPE

SLOPE PROTECTION DETAIL (SP) 1 CE1.0
NTS

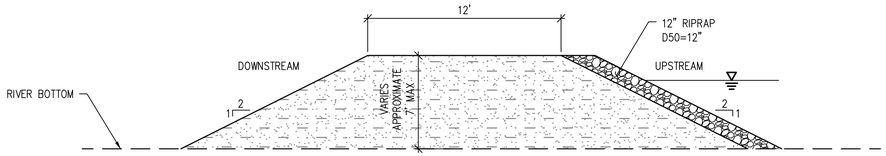


NOTES:
1. BERMS SHALL BE A HEIGHT OF 18 INCHES, SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM BASE WIDTH OF 4'-6".
2. BERMS SHALL BE USED TO INTERCEPT AND DIVERT DRAINAGE TO A DESIGNATED OUTLET.
3. BERMS SHALL NOT BE USED WHERE DRAINAGE ARE EXCEEDS 10 ACRES.
4. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WITH ROLLED COMPACTION.
5. TEMPORARY BERMS SHALL BE CONSTRUCTED OUT OF EMBANKMENT (SUBSOIL AND IN NO CIRCUMSTANCE CONSTRUCTED OUT OF SALVAGED TOPSOIL.

COMPACTED EARTH BERM (CEB) 2 CE1.2
NTS



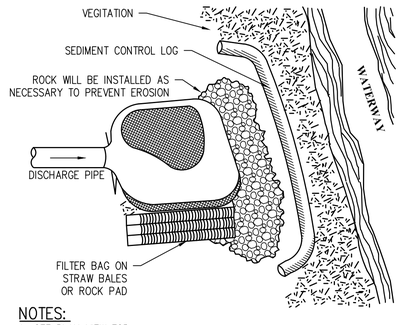
SOIL LIFT DETAIL (SL) 4 CE1.0
NTS



PROFILE

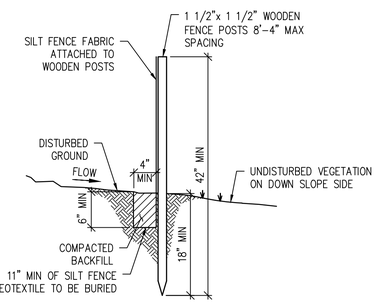
NOTE:
COFFERDAM DETAIL IS INCLUDED FOR REFERENCE. CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, STYLE, MATERIALS, SIZE, AND ARMORING OF THE COFFERDAM USED IN THE COLORADO RIVER AND IN PERSIGO WASH

ROCK COFFERDAM (CF) 3 CE1.0
NTS



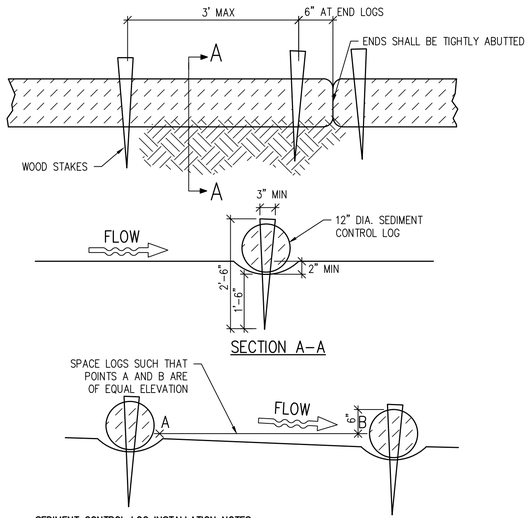
NOTES:
1. SEE PLAN VIEW FOR:
   - LOCATION OF DEWATERING EQUIPMENT
   - TYPE OF DEWATERING OPERATION
2. THE CITY OR CONTRACTOR SHALL OBTAIN A CONSTRUCTION DISCHARGE (DEWATERING) PERMIT FROM THE STATE PRIOR TO ANY DEWATERING OPERATIONS DISCHARGING FROM THE SITE. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMIT
3. THE CITY OR OPERATOR SHALL PROVIDE, OPERATE, AND MAINTAIN DEWATERING SYSTEMS OF SUFFICIENT SIZE AND CAPACITY TO PERMIT EXCAVATION AND SUBSEQUENT CONSTRUCTION IN DRY CONDITIONS AND TO LOWER AND MAINTAIN THE GROUNDWATER LEVEL A MINIMUM OF 2-FEET BELOW THE LOWEST POINT OF EXCAVATION AND CONTINUOUSLY MAINTAIN EXCAVATIONS FREE OF WATER UNTIL BACK-FILLED TO FINAL GRADE
4. DEWATERING OPERATIONS SHALL USE ONE OR MORE OF THE DEWATERING SUMPS SHOWN ABOVE, WELL POINTS, OR OTHER MEANS APPROVED BY THE CITY TO REDUCE THE PUMPING SEDIMENT, AND SHALL PROVIDE A TEMPORARY SEDIMENT BASIN OR FILTRATION BMP TO REDUCE SEDIMENT TO ALLOWABLE LEVELS PRIOR TO RELEASE OFF SITE OR TO A RECEIVING WATER. A SEDIMENT BASIN MAY BE USED IN LIEU OF SUMP DISCHARGE SETTLING BASIN AS SHOWN ABOVE IF A 4-FOOT-SQUARE RIPRAP PADE IS PLACED AT THE DISCHARGE POINT AN THE DISCHARGE END OF THE LINE IS STAKED IN PLACE TO PREVENT MOVEMENT OF THE LINE.

DEWATERING (FILTER BAG OPTION) (DW) 5 CE1.0
NTS



NOTES:
1. SILT FENCE MUST BE PLACED AWAY FROM TOE OF SLOPE TO ALLOW FOR WATER PONDING.
2. SILT FENCE MAY BE USED ALONG PERIMETERS SO LONG AS SLOPES DO NOT EXCEED 5% IF SLOPE IS GREATER THAN 5%, THEN SILT FENCE MAY BE INSTALLED ALONG THE CONTOUR OR A DIVERSION DIKE MAY BE REQUIRED.
3. ANCHOR TRENCH SHALL BE EXCAVATED WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE: NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED. TRENCH SHALL BE COMPACTED BY HAND WITH "JUMPING JACK", OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
4. SILT FENCE INDICATED ON PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTRUBING ACTIVITIES UNLESS NOTED OTHERWISE.
5. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT REACHES A DEPTH OF 6-INCHES.
6. USE WIRED REINFORCED SILT FENCE AT AREA OF CONCENTRATED FLOWS.

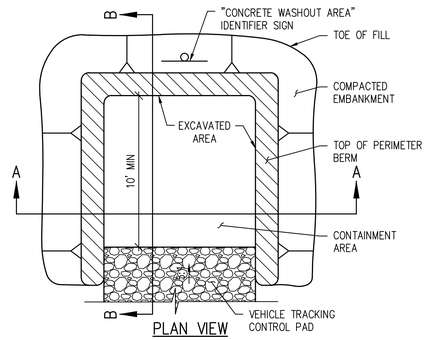
SILT FENCE DETAIL (SF) 6 CE1.2
NTS



SEDIMENT CONTROL LOG INSTALLATION NOTES:
1. SEE PLAN VIEW FOR LOCATION AND EXTENT OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES AND AS REQUIRED DURING CONSTRUCTION.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR, OR COCONUT FIBER.
4. NOT FOR USE IN CONCENTRATED FLOW AREAS.
5. THE SEDIMENT CONTROL LOG SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 2".

SEDIMENT CONTROL LOG MAINTENANCE NOTES:
1. THE SEDIMENT CONTROL LOGS SHALL BE INSPECTED DAILY, DURING AND AFTER ANY STORM EVENT, AND REPAIRED OR HAVE ANY UPSTREAM SEDIMENT REMOVED.
2. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOGS SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 1/2 THE HEIGHT OF THE CREST OF LOG.
3. ALL SEDIMENT CONTROL LOGS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE ACCEPTABLY STABILIZED.

SEDIMENT CONTROL LOG DETAIL (SCL) 7 CE1.0
NTS



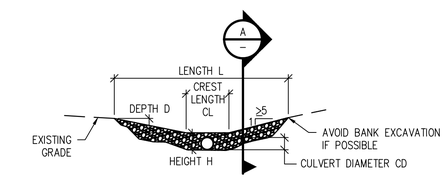
PLAN VIEW

SECTION A-A

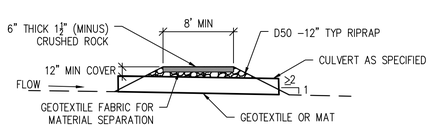
NOTE:
CONTRACTOR MAY USE PORTABLE CONCRETE WASHOUT FACILITY AS OPTION

SECTION B-B

CONCRETE WASHOUT AREA DETAIL (CWA) 8 CE1.0
NTS



CULVERT CROSSING SECTION



SECTION A

TEMPORARY STREAM CROSSING (TSC) 9 CE1.0
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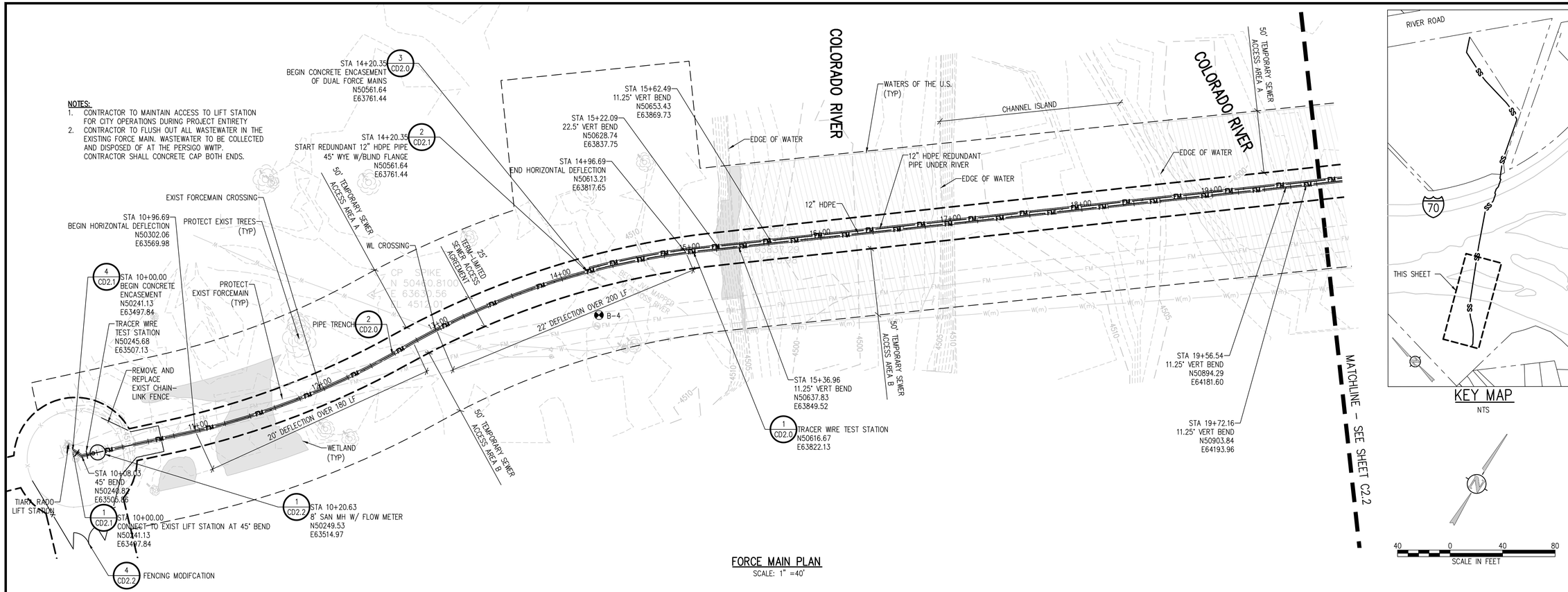
GRAND JUNCTION, COLORADO

EROSION CONTROL NOTES AND DETAILS

SHEET NO.
CE1.4

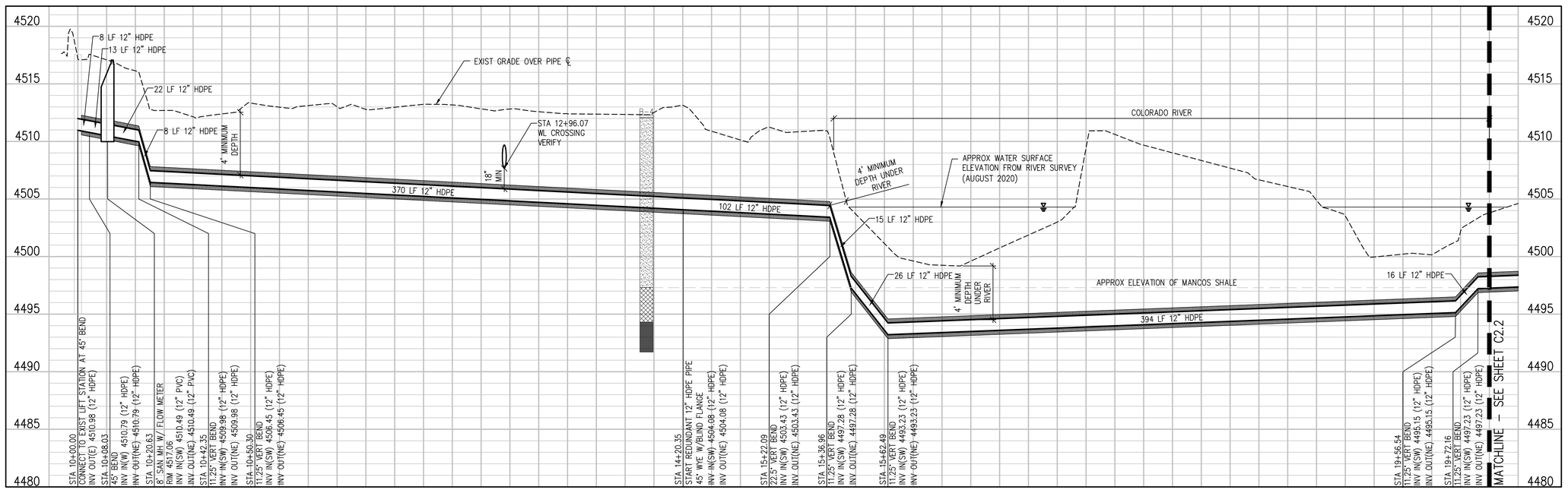
NOTES:
1. CONTRACTOR TO MAINTAIN ACCESS TO LIFT STATION FOR CITY OPERATIONS DURING PROJECT ENTIRETY
2. CONTRACTOR TO FLUSH OUT ALL WASTEWATER IN THE EXISTING FORCE MAIN. WASTEWATER TO BE COLLECTED AND DISPOSED OF AT THE PERSIGO WWTP. CONTRACTOR SHALL CONCRETE CAP BOTH ENDS.



FORCE MAIN PLAN
SCALE: 1" =40'

KEY MAP
NTS

40 0 40 80
SCALE IN FEET



FORCE MAIN PROFILE
SCALE: 1"=40' HORIZ
1"=5' VERT

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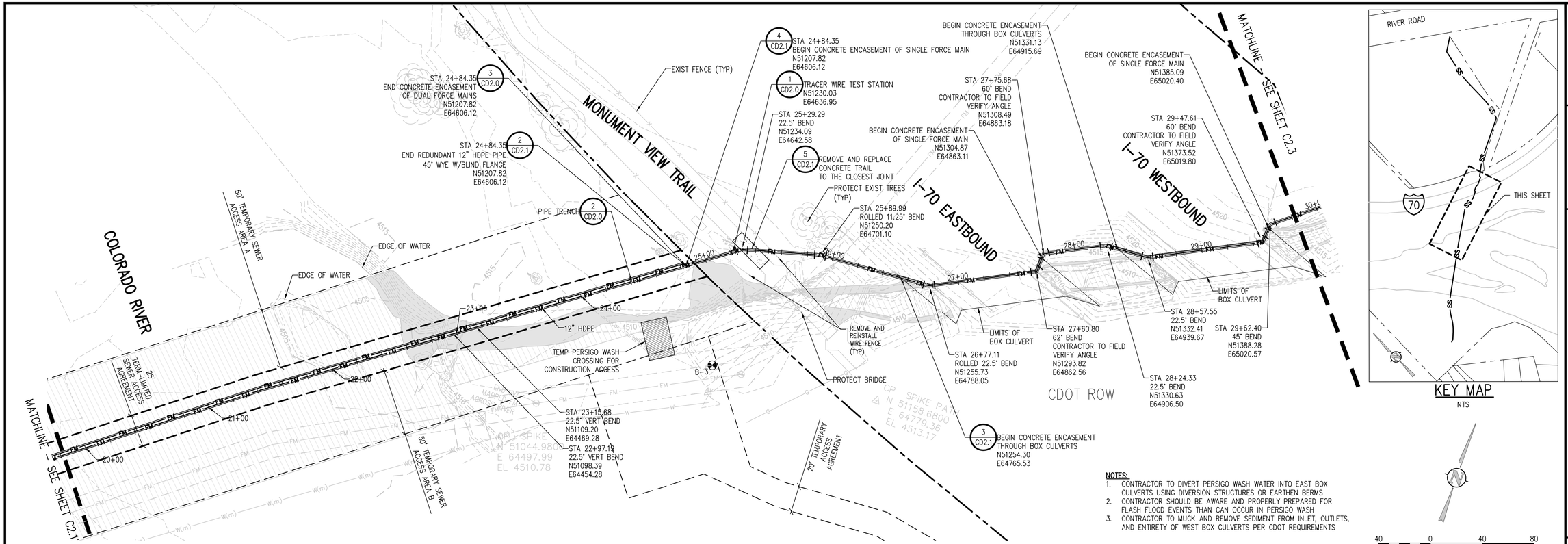
FORCE MAIN PLAN AND PROFILE

SHEET NO.
C2.1

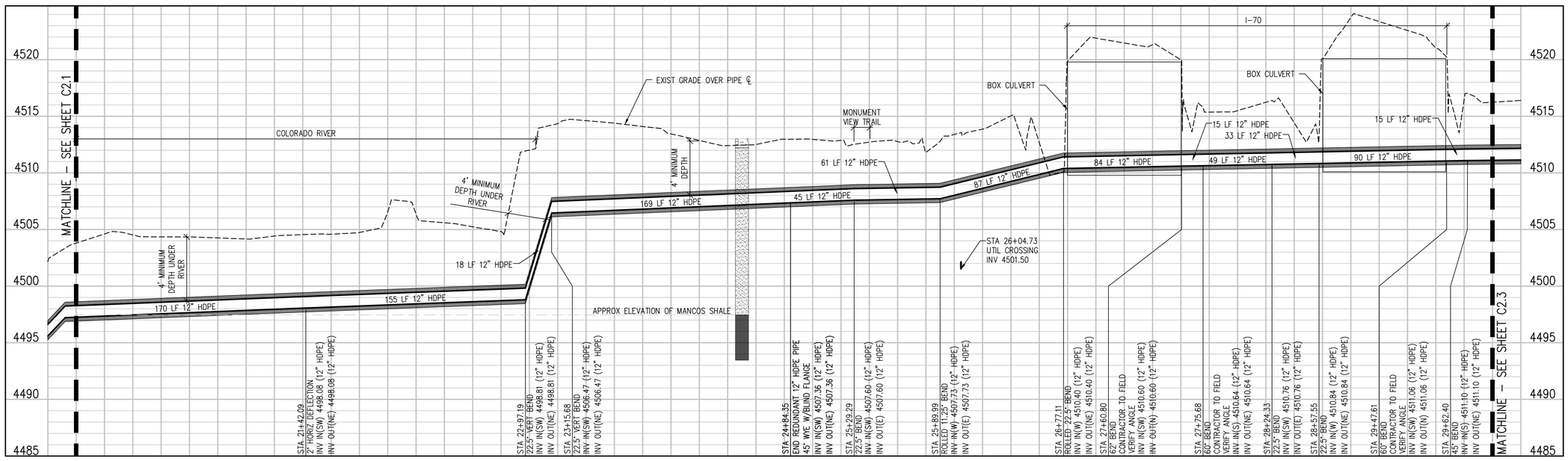


FORCE MAIN PLAN
SCALE: 1" =40'

KEY MAP
NTS

NOTES:
1. CONTRACTOR TO DIVERT PERSIGO WASH WATER INTO EAST BOX CULVERTS USING DIVERSION STRUCTURES OR EARTHEN BERMS
2. CONTRACTOR SHOULD BE AWARE AND PROPERLY PREPARED FOR FLASH FLOOD EVENTS THAN CAN OCCUR IN PERSIGO WASH
3. CONTRACTOR TO MUCK AND REMOVE SEDIMENT FROM INLET, OUTLETS, AND ENTIRETY OF WEST BOX CULVERTS PER CDOT REQUIREMENTS

40 0 40 80
SCALE IN FEET



FORCE MAIN PROFILE
SCALE: 1"=40' HORIZ
1"=5' VERT

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CITY OF GRAND JUNCTION
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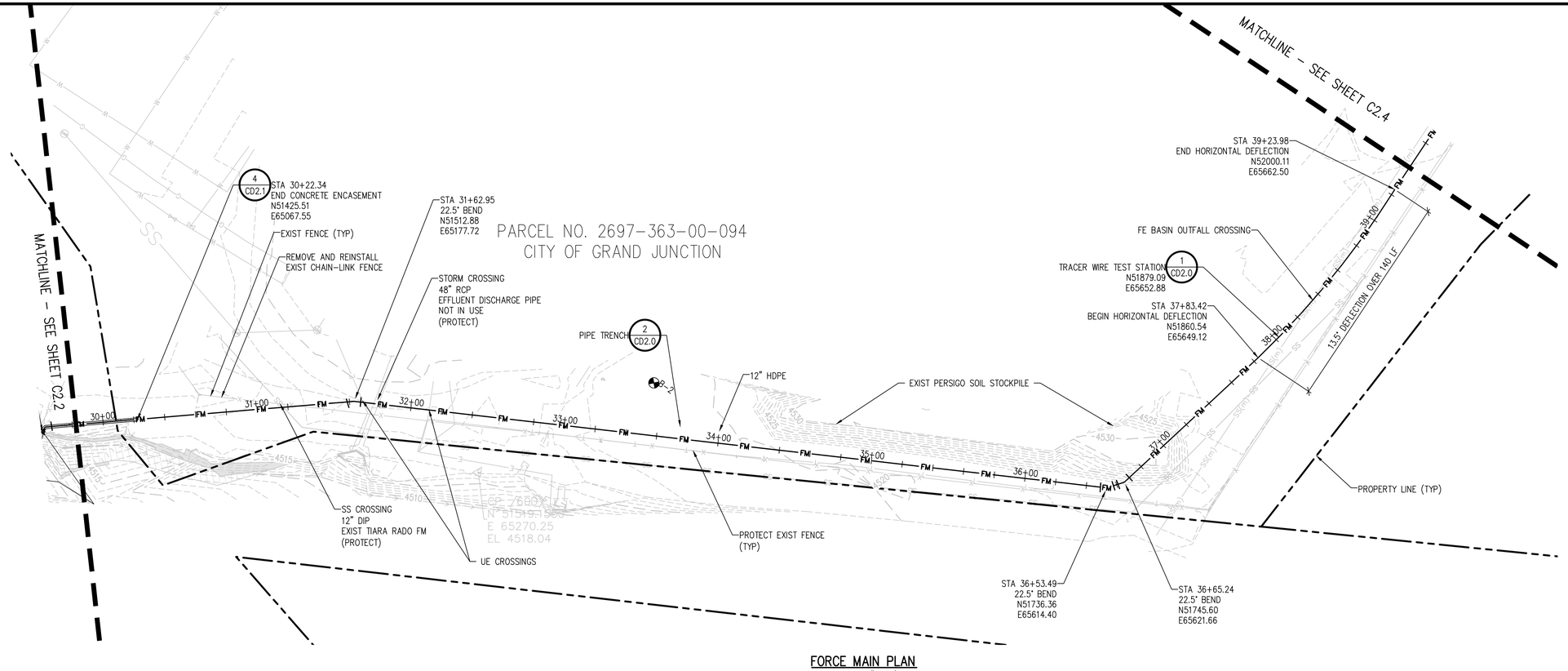
GRAND JUNCTION, COLORADO

FORCE MAIN PLAN AND PROFILE

SHEET NO.
C2.2



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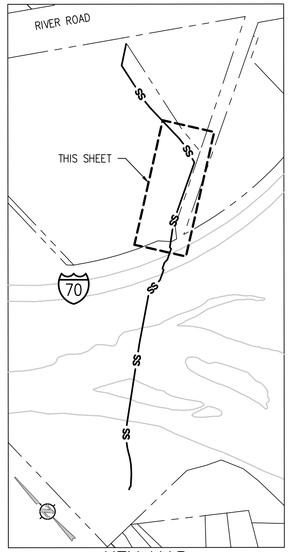

KEY MAP
NTS

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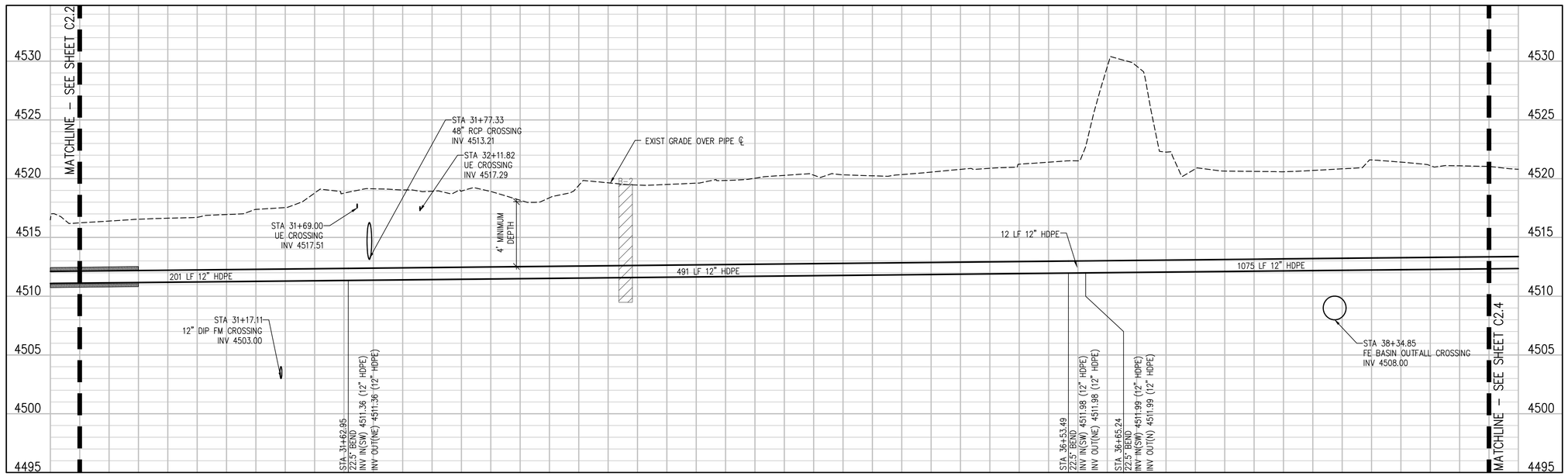

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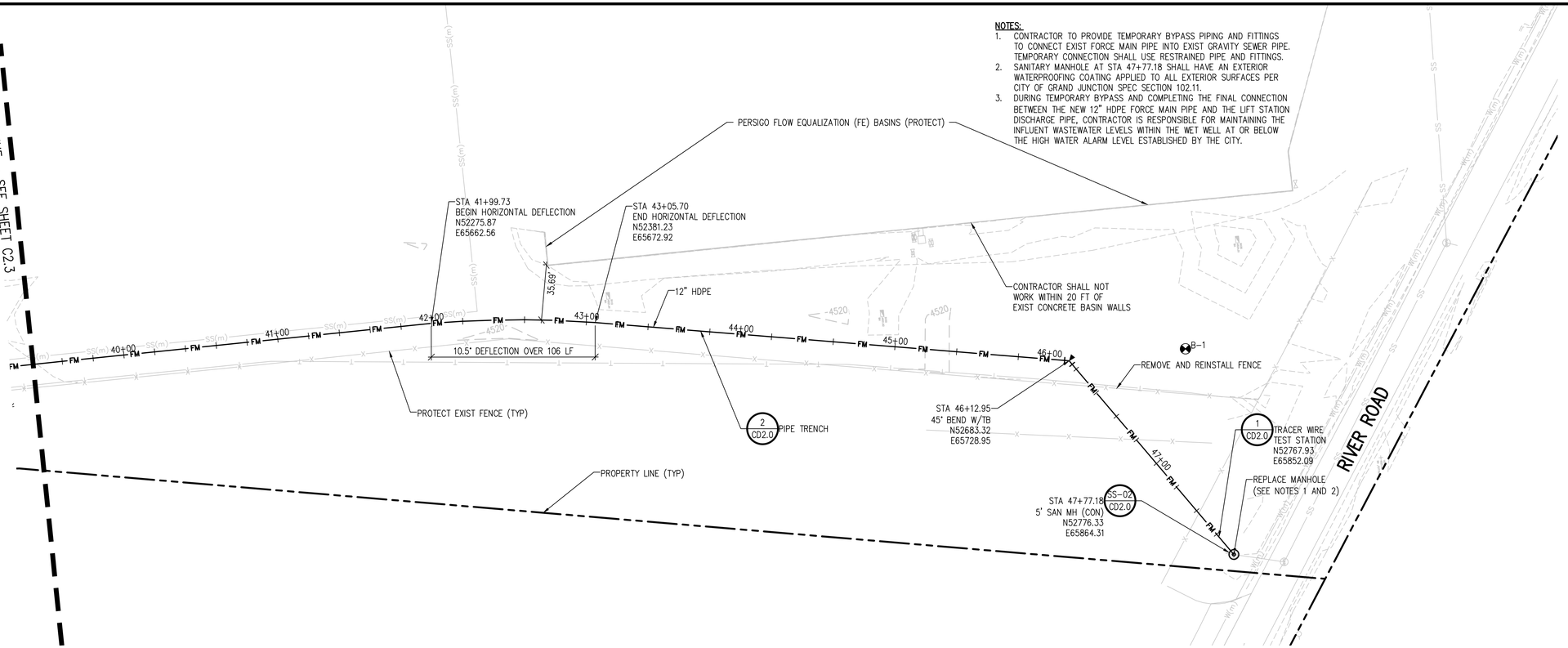
FORCE MAIN PLAN AND PROFILE

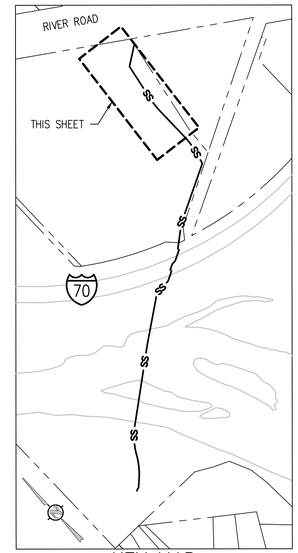
SHEET NO.
C2.3

N:\1071.5e\Drawings\1071.5e – C21.dwg, 4/08/2022 – 1:54 PM, mht

NOTES:
1. CONTRACTOR TO PROVIDE TEMPORARY BYPASS PIPING AND FITTINGS TO CONNECT EXIST FORCE MAIN PIPE INTO EXIST GRAVITY SEWER PIPE. TEMPORARY CONNECTION SHALL USE RESTRAINED PIPE AND FITTINGS.
2. SANITARY MANHOLE AT STA 47+77.18 SHALL HAVE AN EXTERIOR WATERPROOFING COATING APPLIED TO ALL EXTERIOR SURFACES PER CITY OF GRAND JUNCTION SPEC SECTION 102.11.
3. DURING TEMPORARY BYPASS AND COMPLETING THE FINAL CONNECTION BETWEEN THE NEW 12" HDPE FORCE MAIN PIPE AND THE LIFT STATION DISCHARGE PIPE, CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE INFLUENT WASTEWATER LEVELS WITHIN THE WET WELL AT OR BELOW THE HIGH WATER ALARM LEVEL ESTABLISHED BY THE CITY.



FORCE MAIN PLAN
SCALE: 1" =40'



KEY MAP
NTS

SCALE IN FEET
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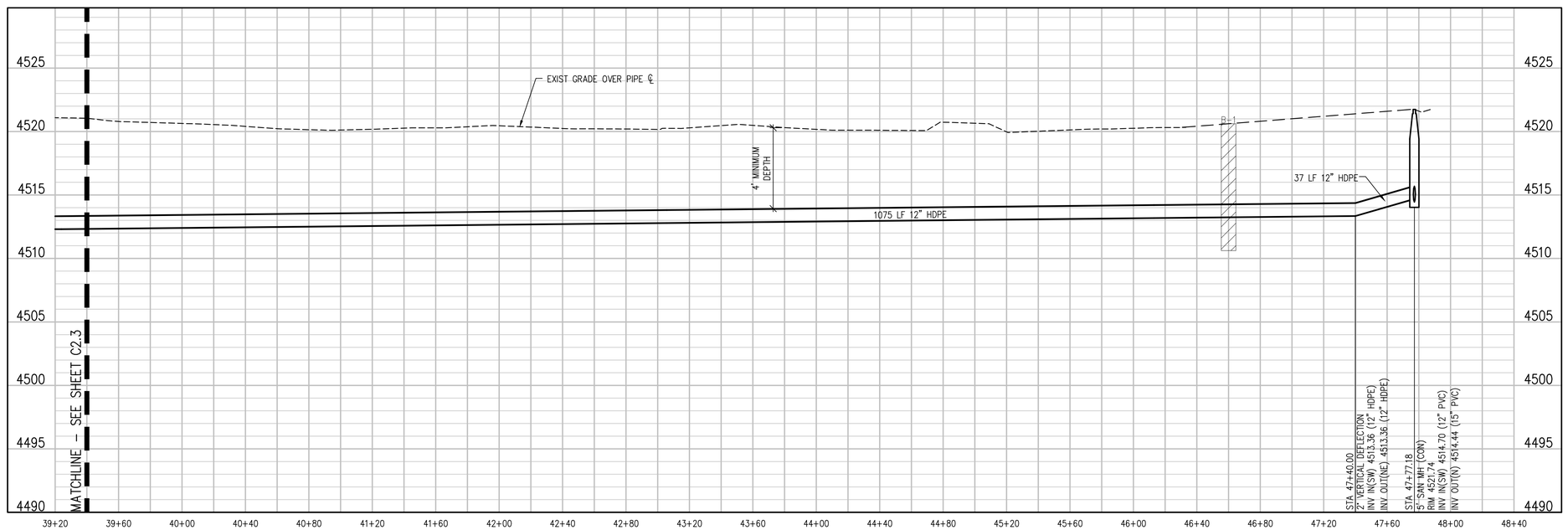

FORCE MAIN PROFILE
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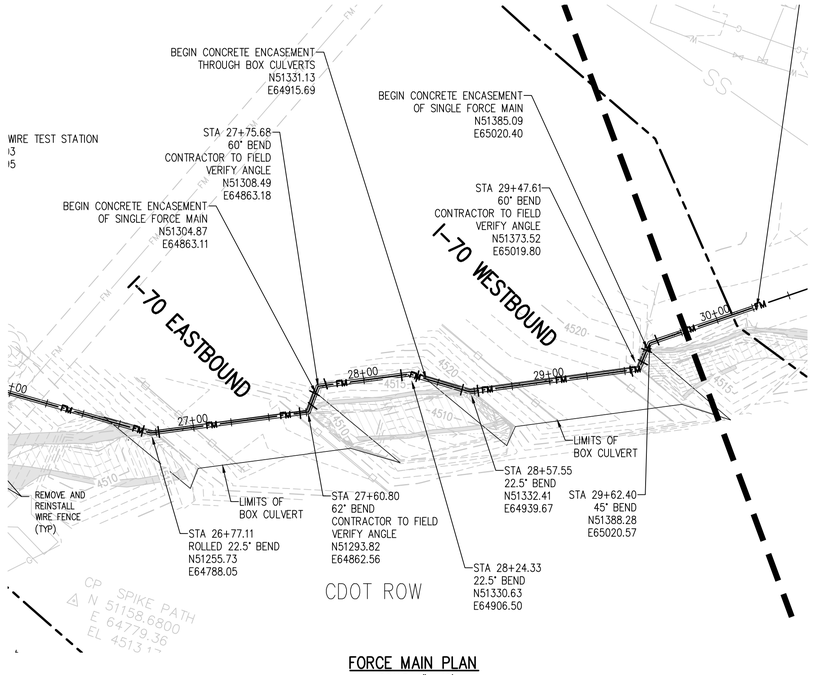
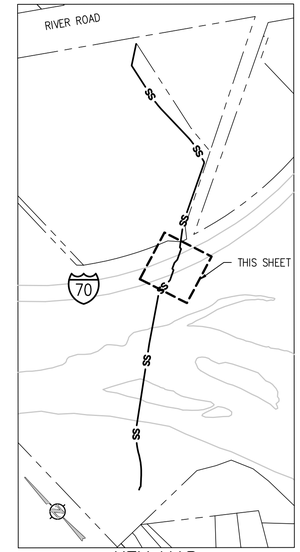
FORCE MAIN PLAN AND PROFILE

SHEET NO.
C2.4

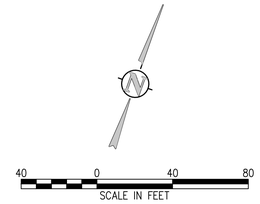


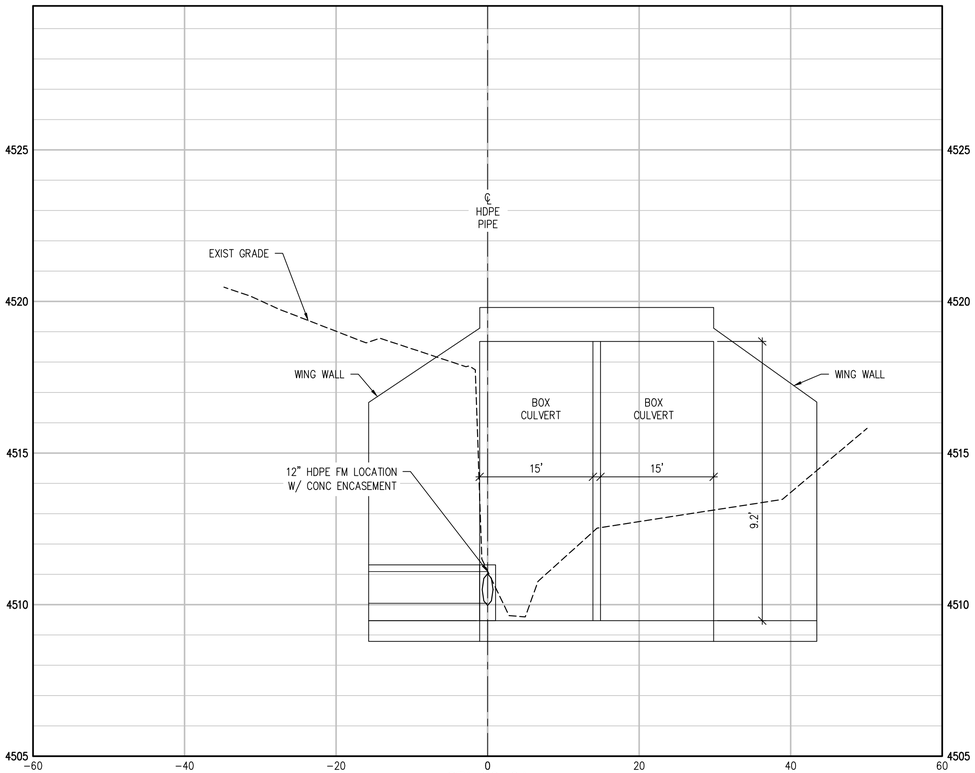
FORCE MAIN PLAN
SCALE: 1" =40'

NOTES:
1. THE CITY DOES NOT KNOW THE PERSIGO WASH AVERAGE FLOWS. THE CONTRACTOR SHALL DETERMINE IF NECESSARY.
2. PERSIGO WASH COFFER DAM(S) ARE REQUIRED TO DIVERT ALL FLOWS INTO SOUTHEAST BOX CULVERTS.
3. CONTRACTOR IS RESPONSIBLE FOR PROTECTIONS TO CONSTRUCTION AREA AND DIVERSION DAMS/EARTH BANKS FROM FLASH FLOODS (THIS IS NOT THE RESPONSIBILITY OF THE CITY)



KEY MAP
NTS





STA 26+64

BOX CULVERT SECTION VIEW (CDOT STRUCTURE H-02-FS)
(SOUTH END LOOKING NORTH)
SCALE: 1"=10' HORIZ
1"=2.5' VERT

BOX CULVERT PROSPECTIVE VIEW (CDOT STRUCTURE H-02-FS)
(LOOKING AT I-70 EASTBOUND BOX CULVERT FROM DOWNSTREAM END)
NTS

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NO.	DATE	DESD	DWN	REVISION DESCRIPTION

DESIGNED BY:	CDB
DRAWN BY:	MHT/JGJ
CHECKED BY:	JJM
JOB #:	1071.5e
DATE:	APRIL 2022

CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

CULVERT CROSS SECTION

SHEET NO.
C2.5

N:\1071.5e\Drawings\1071.5e - C21.dwg, 4/08/2022 - 1:54 PM, mht

A. CONTRACTOR SHALL HAVE ONE SIGNED COPY OF PLANS AND A COPY OF THE CITY OF GRAND JUNCTION'S STANDARD SPECIFICATIONS AT THE JOB SITE AT ALL TIMES.

B. ALL SEWER MAINS SHALL BE PVC SDR 35 (ASTM 3034) UNLESS OTHERWISE NOTED.

C. ALL SEWER MAINS SHALL BE LAID TO GRADE UTILIZING A PIPE LASER.

D. ALL SERVICE LINE CONNECTIONS TO NEW MAINS SHALL BE ACCOMPLISHED WITH FULL BODY WYES OR TEES. TAPPING SADDLES WILL NOT BE ALLOWED.

E. SERVICE LINE CONNECTIONS TO EXISTING NON-PVC MAINS SHALL BE ACCOMPLISHED USING "INSERTA TEES" MANUFACTURED BY INSERTA FITTINGS COMPANY OF HILLSBORO, OREGON. FOR EXISTING PVC MAINS, TAPPING SADDLES SHALL BE USED.

F. 4 INCH SERVICES SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES. ALL 6 INCH SERVICES SHALL BE CONNECTED TO THE MAIN AT A MANHOLE.

G. THE CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

H. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED SEWER LINE TESTING TO BE COMPLETED IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE. PRESSURE TESTING WILL BE PERFORMED AFTER INSTALLATION OF DRY UTILITIES, AFTER ALL COMPACTION OF STREET SUBGRADE AND PRIOR TO STREET PAVING. FINAL LAMPING WILL ALSO BE ACCOMPLISHED AFTER PAVING IS COMPLETED. THESE TESTS SHALL BE THE MINIMUM BASIS OF ACCEPTANCE OF THE SEWER LINE EXTENSION.

I. THE CONTRACTOR SHALL OBTAIN CITY OF GRAND JUNCTION STREET CUT PERMIT FOR ALL WORK WITHIN EXISTING CITY RIGHT-OF-WAY PRIOR TO CONSTRUCTION.

J. A CLAY CUT-OFF WALL SHALL BE PLACED 10 FEET UPSTREAM FROM ALL NEW MANHOLES UNLESS OTHERWISE NOTED. THE CUT-OFF WALL SHALL EXTEND FROM 6 INCHES BELOW TO 6 INCHES ABOVE GRANULAR BACKFILL MATERIAL AND SHALL BE 2 FEET WIDE. IF NATIVE MATERIAL IS NOT SUITABLE, THE CONTRACTOR SHALL IMPORT MATERIAL APPROVED BY THE ENGINEER.

K. SEWER SERVICE STUB OUTS SHALL BE CAPPED AND PLUGGED. STUB OUT SHALL BE MARKED WITH A 4X4 INCH POST PAINTED GREEN BURIED WITH 3 FEET ABOVE GRADE. AS-BUILT SURVEYING FOR VERTICAL GRADE OF STUB OUT REQUIRED PRIOR TO BACKFILL.

L. RED LINE AS-BUILTS SHALL BE SUBMITTED TO THE CITY UTILITY ENGINEER AT LEAST 72 HOURS PRIOR TO PAVING FOR REVIEW.

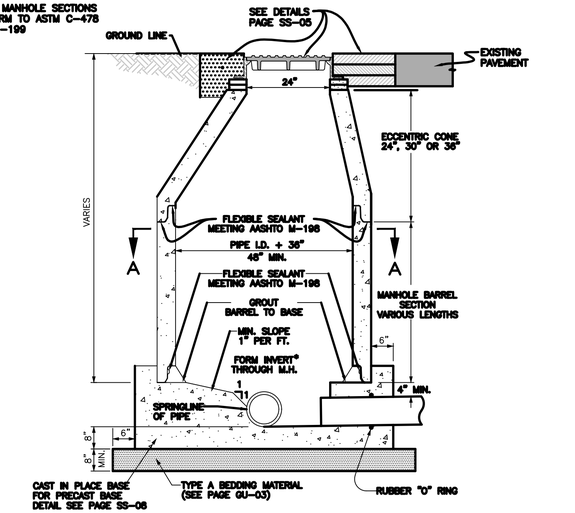
MANHOLE NOTES

1. CONCRETE SHALL BE COLORADO DEPARTMENT OF TRANSPORTATION CLASS "B" (SECTION 601.02)
2. ALL CEMENT USED IN MORTAR, CONCRETE BASES, GRADE RINGS, RISER SECTIONS AND CONES FOR SANITARY SEWER MANHOLES, SHALL BE TYPE V OR MODIFIED TYPE II PORTLAND CEMENT WITH LESS THAN 5% TRICALCIUM ALUMINATE.
3. MANHOLE RISER SECTIONS, CONES AND GRADE RINGS SHALL BE PRECAST REINFORCED CONCRETE CONFORMING TO ASTM C-478 OR AASHTO M-199.
4. BACKFILL AROUND MANHOLES AND OTHER PIPELINE STRUCTURES SHALL BE PLACED IN 8" MAX. LIFTS AND COMPACTED TO 95% AASHTO T-99 WITH HAND OPERATED MECHANICAL EQUIPMENT.
5. ALL WORK SHALL BE IN ACCORDANCE WITH APPROVED PLANS AND CITY SPECIFICATION.
6. THE MANHOLE CONE AND BARREL SECTIONS SHALL BE POSITIONED SUCH THAT THE MANHOLE RING AND STEPS ARE AT A 45° ANGLE FROM THE INLET PIPE (SEE PAGE SS-08).
7. MANHOLE RING AND COVER SHALL BE SET TO FINISH GRADE USING RAPID ROAD REPAIR GROUT TO ADJUST RIM ELEVATION. GROUT SHALL NOT EXCEED 2". THICKNESS. GROUT SHALL BE PLACED BETWEEN TOP OF CONCRETE GRADE RING AND RING AND COVER. STEEL GRADE ADJUSTMENT RINGS MAY BE USED FOR ADJUSTMENT OF MANHOLE COVERS ONLY WHEN STREETS ARE OVERLAID.
8. INVERTED MANHOLE RINGS WILL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER.

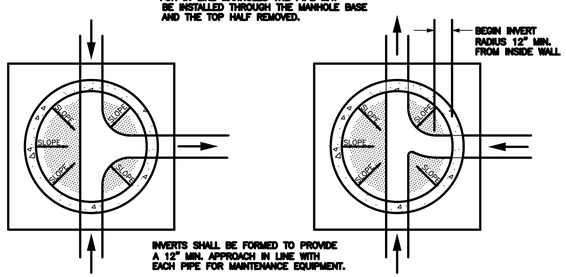
GENERAL SEWER NOTES

DEPARTMENT OF PUBLIC WORKS AND PLANNING ENGINEERING DIVISION CITY OF GRAND JUNCTION, COLORADO	STANDARD SANITARY SEWER DETAIL	APPROVED: SPS DATE: JUNE 2002 DRAWN: TP/DW	PAGE SS-01

ALL PRECAST MANHOLE SECTIONS SHALL CONFORM TO ASTM C-478 OR AASHTO M-199



* FOR IN LINE MANHOLES THE PIPE MAY BE INSTALLED THROUGH THE MANHOLE BASE AND THE TOP HALF REMOVED.

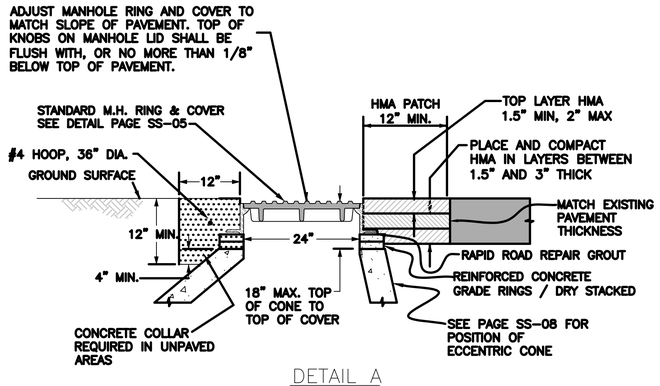


SECTION A-A

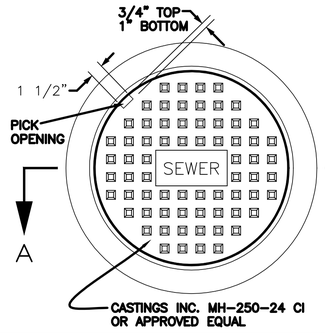
STANDARD MANHOLE - CAST IN PLACE BASE

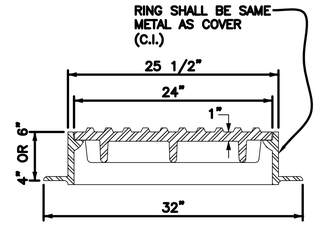
DEPARTMENT OF PUBLIC WORKS AND PLANNING ENGINEERING DIVISION CITY OF GRAND JUNCTION, COLORADO	STANDARD SANITARY SEWER DETAIL	APPROVED: DN REVISED: FEB 2007 DRAWN: TLY	PAGE SS-02

ADJUST MANHOLE RING AND COVER TO MATCH SLOPE OF PAVEMENT. TOP OF KNOBS ON MANHOLE LID SHALL BE FLUSH WITH, OR NO MORE THAN 1/8" BELOW TOP OF PAVEMENT.



DETAIL A



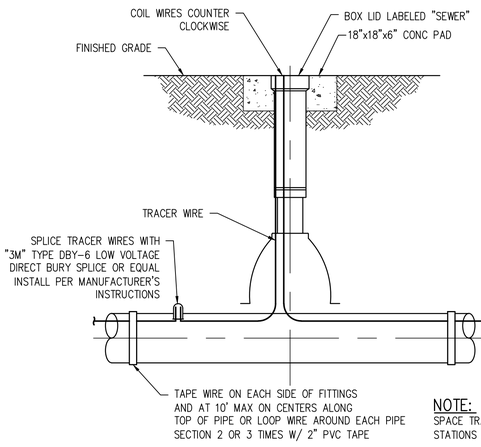


SECTION A-A

NOTE:
FOR SEWER MANHOLES LOCATED IN SIDEWALK OR OTHER PEDESTRIAN WAY USE CASTINGS INC. MH-250-24D CI (CHECKER PATTERN LID)

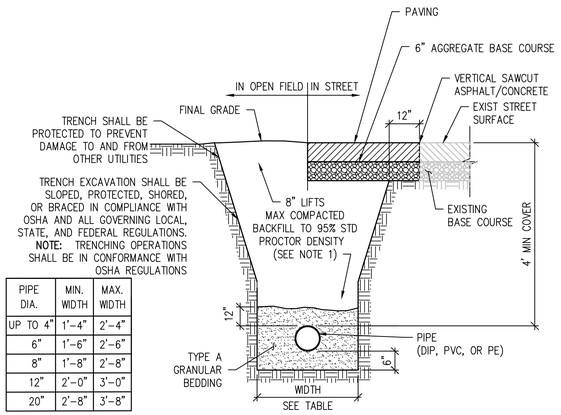
STANDARD MANHOLE RING AND COVER

DEPARTMENT OF PUBLIC WORKS AND PLANNING ENGINEERING DIVISION CITY OF GRAND JUNCTION, COLORADO	STANDARD SANITARY SEWER DETAIL	APPROVED: SPS REVISED: JUNE 2002 DRAWN: JAT	PAGE SS-05



NOTE:
SPACE TRACER WIRE TEST STATIONS AT 500' MAX SPACING

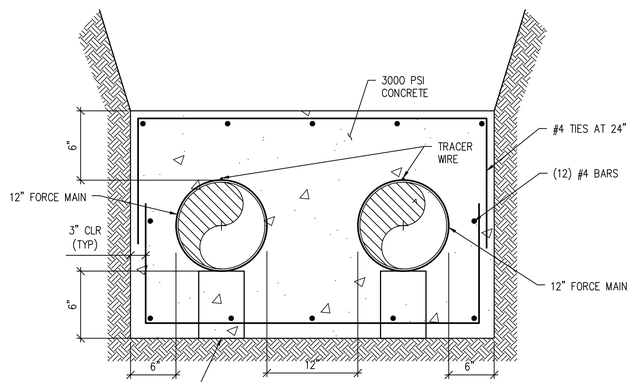
TRACER WIRE INSTALLATION AND TEST STATION DETAIL (1 / C2.1)
NTS



PIPE DIA.	MIN. WIDTH	MAX. WIDTH
UP TO 4"	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
20"	2'-8"	3'-8"

NOTES:
1. GRANULAR TYPE A BEDDING: 6" BELOW PIPE AND 12" ABOVE TOP OF PIPE.
2. MINIMUM COVER TO BE 4' BELOW FINAL GRADE.
3. COMPACTED BACKFILL TO 90% STD PROCTOR DENSITY IN NON-DRIVING SURFACES AND 95% UNDER PAVEMENT (RE: CIVIL)
4. PAVING SHALL COMPLY WITH LOCAL AUTHORITY JURISDICTION.
5. PROVIDE MARKER TAPE AND TRACER WIRE ABOVE PIPE PER SPECIFICATIONS.
6. CONTRACTOR TO PROTECT EXISTING UTILITIES AND MAINTAIN SERVICE DURING CONSTRUCTION OF ROADWAY AND UTILITIES

TYPICAL TRENCH DETAIL (2 / C2.1)
NTS



NOTES:
1. DOBIE SPACING IS 8-FT MAX.
2. PIPE MUST SUCCESSFULLY PASS A PRESSURE TEST PER CITY STANDARD SPEC 105.4 PRIOR TO CONCRETE ENCASEMENT. PRESSURE TESTING IS INCLUDED IN PAYMENT METHODS SECTION 01200

CONCRETE ENCASEMENT WITH DUAL FORCE MAINS DETAIL (3 / C2.1)
NTS

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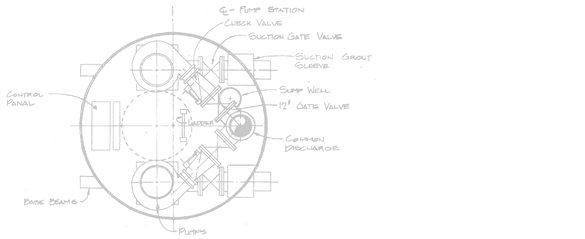
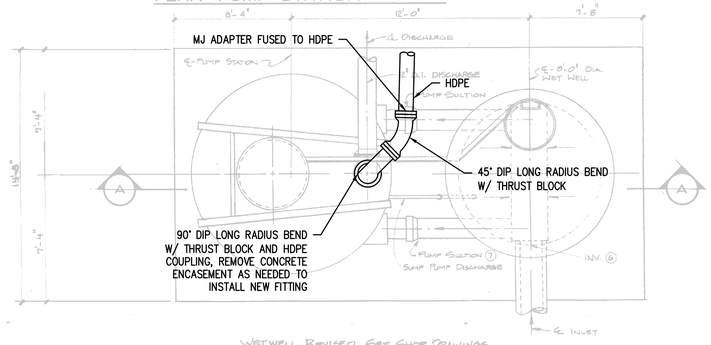
CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

FORCE MAIN DETAILS

SHEET NO.
CD2.0



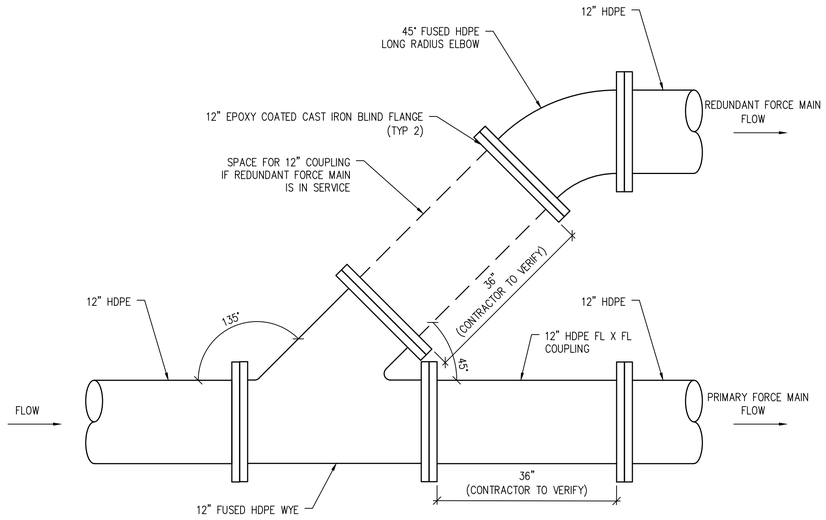
PLAN PUMP STATION



WETWELL REVISED SEE SHOP DRAWINGS.
PLAN PUMP STATION (1 REQ'D.)
NO SCALE

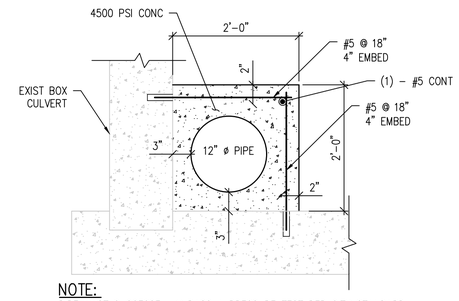
STA. 37+40 TIARA RADO

CONNECT TO EXIST PUMP STATION
NTS — 1 / C2.1



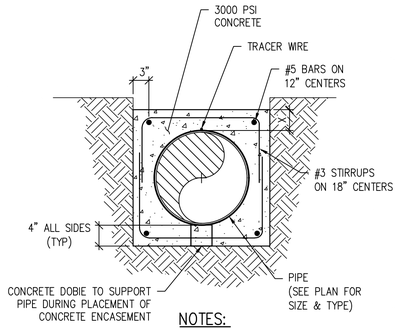
NOTES:
1. THE COUPLING FROM THE PRIMARY FORCE MAIN CAN BE REMOVED AND CONNECTED TO THE REDUNDANT FORCE MAIN IF THE PRIMARY FORCE MAIN NEEDS TO BE TAKEN OUT OF SERVICE.
2. ALL FITTINGS TO BE FUSED HDPE
3. PER SPECIFICATION, STAINLESS STEEL BOLTS, NUTS, AND WASHERS SHALL BE USED

REDUNDANT FORCE MAIN CONNECTION DETAIL
NTS — 2 / C2.1



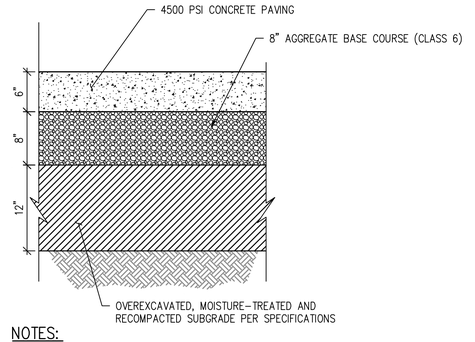
NOTE:
PIPE MUST SUCCESSFULLY PASS A PRESSURE TEST PER CITY STANDARD SPEC 105.4 PRIOR TO CONCRETE ENCASEMENT. PRESSURE TESTING IS INCLUDED IN PAYMENT METHODS SECTION 01200

PIPE ENCASEMENT IN EXISTING CDOT BOX CULVERT
NTS — 3 / C2.2



NOTES:
1. DOBIE SPACING IS 8-FT MAX
2. PIPE MUST SUCCESSFULLY PASS A PRESSURE TEST PER CITY STANDARD SPEC 105.4 PRIOR TO CONCRETE ENCASEMENT. PRESSURE TESTING IS INCLUDED IN PAYMENT METHODS SECTION 01200

CONCRETE ENCASEMENT DETAIL
NTS — 4 / C2.1



NOTES:
1. SEE SPECIFICATIONS FOR REINFORCEMENT REQUIREMENTS.
2. SEE CONTRACTION JOINT AND EXPANSION JOINT DETAILS.

CONCRETE WALK PATCH DETAIL
NTS — 5 / C2.2

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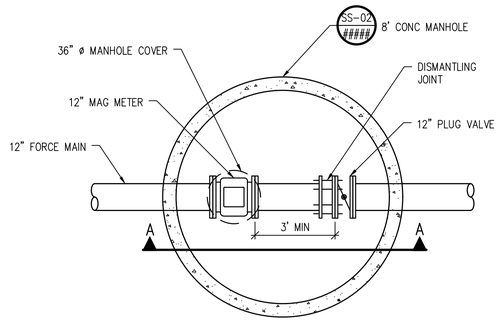
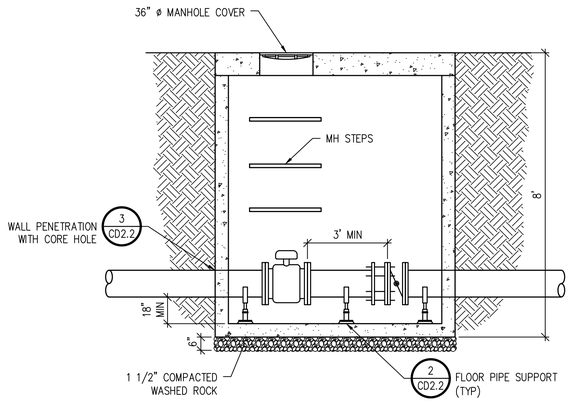
CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

FORCE MAIN DETAILS

SHEET NO.
CD2.1



PLAN VIEW



SECTION A

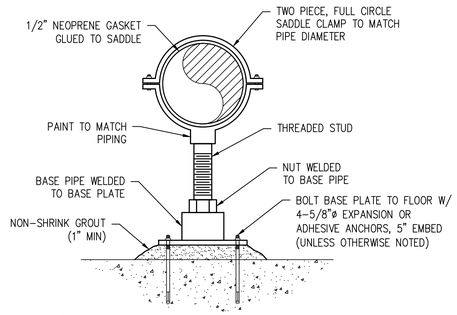
NOTES:

1. A MINIMUM OF FIVE FEET STRAIGHT PIPE SHALL BE PROVIDED BEFORE THE FLOW METER
2. MANHOLE LID SHALL BE HS-20 TRAFFIC RATED
3. FLOW METER VAULT SHALL HAVE AN EXTERIOR WATERPROOFING COATING APPLIED TO ALL EXTERIOR SURFACES PER CITY OF GRAND JUNCTION SPEC SECTION 102.11

FLOW METER VAULT

NTS

1 / C2.1



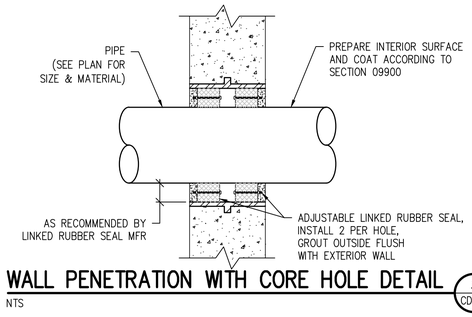
PIPE SIZE	CLAMP SIZE	THREADED STUD ø	BASE PLATE	BASE PIPE
2", 3"	.375"x1.5"	.75"	6"x6"	2"
4"-12"	.5"x2"	1"	8"x8"	2"*
14"-16"	.625"x3"	1.5"	12"x12"	3"
18"-24"	.75"x4"	2"	12"x12"	4"

*USE MINIMUM 3" BASE PIPE FOR PIPE SUPPORT TALLER THAN 36"

FLOOR PIPE SUPPORT DETAIL

NTS

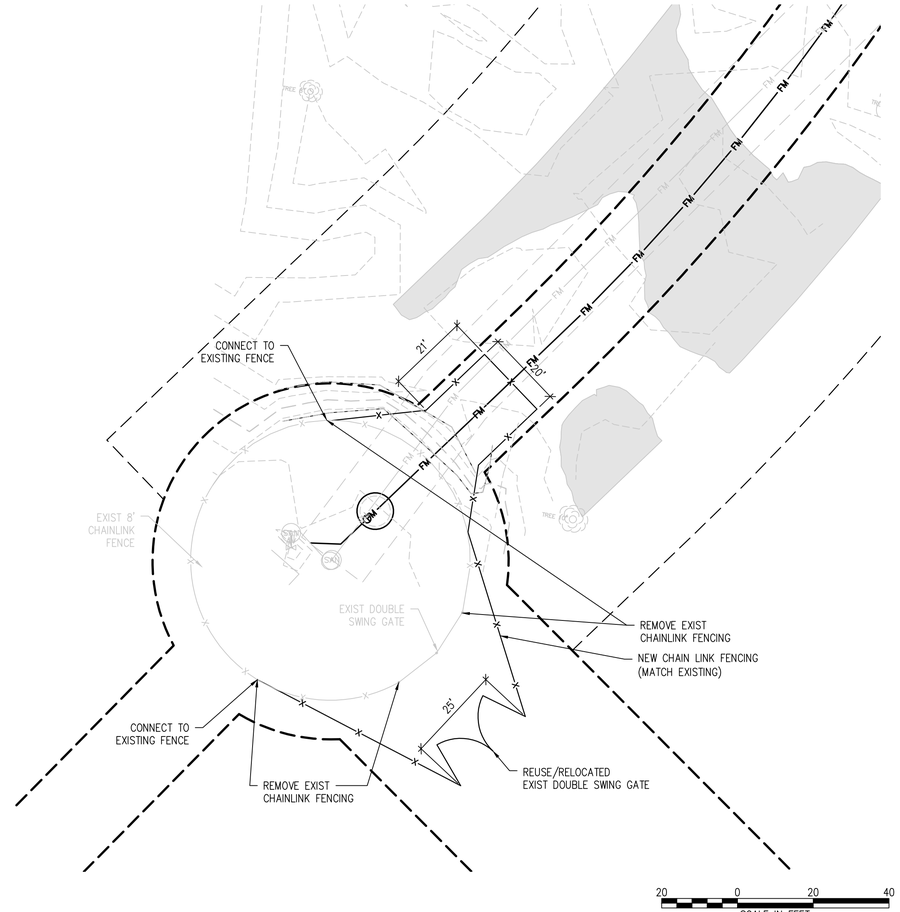
2 / CD2.2



WALL PENETRATION WITH CORE HOLE DETAIL

NTS

3 / CD2.2



FENCING MODIFICATION AT EXISTING LIFT STATION

4 / C2.1

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CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

FORCE MAIN DETAILS

SHEET NO.

CD2.2

ONE LINE DIAGRAM LEGEND

1500KVA
2.4KV-480Y/277
3Ø, 60 HZ — TRANSFORMER WITH PRIMARY AND SECONDARY VOLTAGE, AND KVA RATING AS NOTED.

20 — 22: 3#8,#10G,2" — CIRCUIT NO. 22 WITH #8 INSULATED CONDUCTORS, 1#10 BARE GROUND WIRE ALL IN 2" CONDUIT TO 20 HP MOTOR.

AUXILIARY ITEMS MAY NOT BE SHOWN COMPLETELY
15 — ONE-LINE SHOWING POWER AND CONTROL TO A PACKAGE UNIT, AS FOR EXAMPLE A STEAM GENERATOR OR AN AIR HANDLING UNIT, SHALL IMPLY THAT ANY AND ALL ASSOCIATED EQUIPMENT SHALL ALSO BE INSTALLED AND WIRED AS REQUIRED BY THE EQUIPMENT FURNISHED.

INDICATES THAT ALL OR PART OF CIRCUIT MAY BE ROUTED IN DUCT BANK OR UNDERGROUND. CONDUIT SIZE SHOWN ON ONE-LINE IS ABOVE GROUND AND/OR INSIDE OF STRUCTURE. SEE DUCT BANK SCHEDULE AND SECTIONS FOR CONDUIT SIZE OF UNDERGROUND PORTION OF CIRCUIT.

HIGH VOLTAGE DRAWOUT AIR OR VACUUM CIRCUIT BREAKER.

3P-20 — LOW VOLTAGE AIR CIRCUIT BREAKER, 3 POLE, 20 AMPERE.

S4 — SIZE 4 COMBINATION MAGNETIC MOTOR STARTER.

S4 — SIZE 4 REDUCED VOLTAGE SOFT STARTER

LOW VOLTAGE DRAWOUT AIR CIRCUIT BREAKER.

HIGH VOLTAGE DRAWOUT CONTACTOR.

FUSE AND DISCONNECT SWITCH.

S2 — SIZE 2 COMBINATION MAGNETIC MOTOR STARTER, REVERSING OR 2 SPEED.

POTENTIAL TRANSFORMER.

CURRENT TRANSFORMER.

CONDUIT & WIRING INSTALLATION LEGEND

CONDUIT EXPOSED.

CONDUIT CONCEALED.

CONDUIT TURNING UP, CONDUIT TURNING DOWN.

CONDUIT PLUGGED FLUSH, CONDUIT CAPPED.

L2-5 — TYPICAL FOR HOME RUN TO BE ROUTED TO LIGHTING PANEL L2 AND CONNECTED TO CIRCUIT #5 (MINIMUM NO. 12 AWG CONDUCTORS & ¾" CONDUIT.)

A — LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE.

11 — FLUORESCENT FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE.

LP1-3 — RECEPTACLE POWERED FROM LIGHTING PANEL LP1, CIRCUIT 3.

A LP2-2 — LIGHTING FIXTURE POWERED FROM LIGHTING PANEL LP2, CIRCUIT 2 (NON-SWITCHED.)

LPA-4
11 — LIGHTING FIXTURE POWERED FROM LIGHTING PANEL LPA, CIRCUIT 4

A
11 — LIGHTING FIXTURE POWERED VIA SWITCH A.

E E — UNDERGROUND CONCRETE ENCASED ELECTRICAL DUCT BANK.

UNDERGROUND CONCRETE ENCASED ELECTRICAL BANK ROUTED BENEATH SLAB-ON-GRADE.

EE EE — DIRECT BURIED CONDUIT.

GROUND CONDUCTOR.

SCHEMATIC SYMBOLS

- WIRE CONNECTION POINT
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- STARTER, CONTACTOR OR RELAY COIL
- NORMALLY OPEN PUSH BUTTON
- NORMALLY CLOSED PUSH BUTTON
- MAINTAINED PUSH BUTTON
- NORMALLY CLOSED GEARED LIMIT SWITCH
- NORMALLY OPEN GEARED LIMIT SWITCH
- INDICATING LIGHT
- FUSE
- CONTROL POWER TRANSFORMER
- SWITCH
- MS MANUAL STARTER
- OL OVERLOAD
- FLOAT SWITCH (CLOSING ON RISING LEVEL)
- FLOAT SWITCH (OPENING ON RISING LEVEL)
- PRESSURE SWITCH (CLOSING ON RISING PRESSURE)
- PRESSURE SWITCH (OPENING ON RISING PRESSURE)
- VACUUM SWITCH (CLOSING ON INCREASING VACUUM)
- VACUUM SWITCH (OPENING ON INCREASING VACUUM)
- TEMPERATURE SWITCH (CLOSING ON RISING TEMPERATURE)
- TEMPERATURE SWITCH (OPENING ON RISING TEMPERATURE)
- FLOW ACTUATED SWITCH (CLOSING ON INCREASE IN FLOW)
- FLOW ACTUATED SWITCH (OPENING ON INCREASE IN FLOW)
- ON TIME DELAY SWITCH (NORMALLY OPEN WITH TIME DELAY CLOSING AFTER COIL IS ENERGIZED)
- ON TIME DELAY SWITCH (NORMALLY CLOSED WITH TIME DELAY OPENING AFTER COIL IS ENERGIZED)
- OFF TIME DELAY SWITCH (NORMALLY OPEN WITH TIME DELAY OPENING AFTER COIL IS DE-ENERGIZED)
- OFF TIME DELAY SWITCH (NORMALLY CLOSED WITH TIME DELAY CLOSING AFTER COIL IS DE-ENERGIZED)
- TORQUE SWITCH (NORMALLY OPEN)
- TORQUE SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY OPEN)
- LIMIT SWITCH (NORMALLY OPEN, HELD CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED, HELD OPEN)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY OPEN, CLOSING ON INCREASING DIFF.)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY CLOSED, OPENING ON INCREASING DIFF.)
- SUPX 24 VDC SURGE PROTECTION

SWITCH & OUTLET SYMBOLS

- S^{A} SINGLE POLE SWITCH, A=SWITCH DESIGNATION
- S_{2}^{A} TWO POLE SWITCH, A=SWITCH DESIGNATION
- S_{3}^{A} THREE-WAY SWITCH, A=SWITCH DESIGNATION
- S_{4}^{A} FOUR-WAY SWITCH, A=SWITCH DESIGNATION
- S_{WP}^{A} WEATHERPROOF SWITCH, A=SWITCH DESIGNATION
- S_{KO}^{A} KEY OPERATED SWITCH, A=SWITCH DESIGNATION
- S_{EP}^{A} EXPLOSION PROOF SWITCH, A=SWITCH DESIGNATION
- SO^{A} OCCUPANCY SENSOR SWITCH, A=SWITCH DESIGNATION
- DUPLEX RECEPTACLE 120 VOLT
- 240V, 1 PHASE RECEPTACLE, TYPICAL AMPERE RATING NOTED
- 480V, 3 PHASE WELDING RECEPTACLE, TYPICAL AMPERE RATING NOTED

MISCELLANEOUS SYMBOLS

- E ETHERNET PORT
- T THERMOSTAT
- J JUNCTION BOX
- DISCONNECT SWITCH
- COMBINATION STARTER
- POWER PANEL
- LIGHTING PANEL
- MISCELLANEOUS PANEL

ABBREVIATIONS

A	AMBER, AMPERE, ALARM
AC	ALTERNATING CURRENT
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AM	AMMETER
ATO	AUTOMATIC THROWOVER
AWG	AMERICAN WIRE GAUGE
C	CLOSE, COUNTER, CONTACTOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CD	CONTROL DAMPER
CKT	CIRCUIT
CL2	CHLORINE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CS	CONTROL STATION
CT	CYCLE TIMER, CURRENT TRANSFORMER
CTM	CYCLE TIMER MOTOR
2/C	2 CONDUCTOR
4"C	4" CONDUIT
DC	DIRECT CURRENT
DM	DAMPER MOTOR, DEMAND METER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPS	DIFFERENTIAL PRESSURE SWITCH
DS	DISCONNECT SWITCH
E	ELECTRIC OPERATOR FOR CONTROL DAMPER OR VALVE
EMH	ELECTRICAL MANHOLE
ETM	ELAPSED TIME METER
EX	EXISTING
F	FORWARD
FS	FLOW SWITCH
G	GREEN, GROUND
GFI	GROUND FAULT INTERRUPTER
GLS	GEARED LIMIT SWITCH
#8G	#8 GROUND WIRE
H	HIGH, HUMIDISTAT
HH	HANDHOLE
HMT	HIGH MOTOR TEMPERATURE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HWCO	HIGH WATER CUTOFF
HZ	HERTZ (CYCLE)
I/O	INPUT/OUTPUT
J	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVAR
KW	KILOWATT
KWH	KILOWATT HOUR
L	LOW, LEVEL
LA	LIGHTNING ARRESTOR
LAN	LOCAL AREA NETWORK
LP	LIGHTING PANEL
LS	LIMIT SWITCH, LEVEL SWITCH
LWCO	LOW WATER CUTOFF
M	MAGNETIC MOTOR STARTER
MA	MILLIAMPERE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MIL
MD	MOISTURE DETECTOR
MH	MANHOLE, MOUNTING HEIGHT
MOV	MOTOR OPERATED VALVE
MS	MANUAL MOTOR STARTER
MSH	MOTOR SPACE HEATER
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER OPEN
O	OVERLOAD
OL	PUSH BUTTON, PULL BOX
PB	POWER FACTOR METER
PF	PHASE (CHEMICAL TERM)
PH	PROGRAMMABLE LOGIC CONTROLLER
PLC	POWER PANEL
PP	PRESSURE SWITCH
PS	POTENTIAL TRANSFORMER, PROGRAM TIMER
PT	2 POLE
2P	RED, RAISE, RELAY, REVERSE
R	RECEPTACLE
RECP	RIGID GALVANIZED STEEL
RGS	RESISTANCE TYPE TEMP DETECTOR
RTD	REMOTE TERMINAL UNIT
RTU	REDUCED VOLTAGE SOLID STATE STARTER
RVSS	SIZE 2 STARTER
S2	SUPERVISORY CONTROL AND DATA ACQUISITION
SCADA	SINGLE POLE
SP	SINGLE POLE DOUBLE THROW
SPDT	SINGLE POLE SINGLE THROW
SPST	SELECTOR SWITCH
SS	SOLENOID VALVE
SV	SWITCHBOARD
SWB	SWITCHGEAR
SWGR	THERMOSTAT, TIMER, TOTALIZER
T	TACHOMETER
TACH	TERMINAL BLOCK
TB	TIME DELAY RELAY
TD	TEMPERATURE
TEMP	TORQUE
TQ	TEMPERATURE SWITCH
TS	UNDERGROUND
UG	UNINTERRUPTIBLE POWER SUPPLY
UPS	VOLTS
V	VOLT AMPERE
VA	VALVE LIMIT SWITCH
VLS	VOLTMETER
VM	WHITE, WATTS
W	WATTHOUR METER
WH	WATT METER
WM	WEATHERPROOF
WP	TRANSFORMER
XFMR	EXPLOSION PROOF
XP	YELLOW
Y	AUXILIARY RELAY
Z	POSITION SWITCH
ZS	

AREA DESIGNATIONS

THE SPECIAL AREA DESIGNATION BOXES, AS DEFINED BELOW, ARE LOCATED ON THE PLAN DRAWINGS TO DEFINE ELECTRICAL INSTALLATION REQUIREMENTS. DESIGNATION BOXES ARE LOCATED WITHIN ROOM OR BELOW ROOM NUMBER. ALL INDOOR AREAS NOT INDICATED OTHERWISE ARE AREA TYPE 1 AND MINIMUM NEMA TYPE 1 ENCLOSURES.

AREA TYPE 1 — INDOOR AND DRY AREA. REQUIRES MINIMUM NEMA TYP 1 ENCLOSURES FOR ALL EQUIPMENT AND GASKETED FITINGS IN CONDUIT SYSTEMS.

AREA TYPE 1A — CORROSIVE CHEMICAL FEED AND STORAGE ROOMS. CONDUIT SYSTEM SHALL BE EXPOSED PVC COATED CONDUIT WITH FITTINGS, AND ACCESSORIES.

AREA TYPE 4 — INDOOR WET LOCATIONS SUCH AS VAULTS, HOSEDOWN AREAS, BASEMENTS, ETC. MINIMUM NEMA TYPE 4 ENCLOSURE FOR EQUIPMENT AND GASKETED FITTINGS IN A CONDUIT SYSTEM.

AREA TYPE 7A — CLASS 1, DIVISION 1 AREA AS DEFINED BY NEC. ALL EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.

AREA TYPE 7B — CLASS 1, DIVISION 2, GROUP C AND D (METHANE, GASOLINE) AS DEFINED BY NEC. EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.

AREA TYPE 12 — INDOOR, DRY, DIRTY AREA. REQUIRES MINIMUM NEMA TYPE 12 GASKETED ENCLOSURES FOR ALL EQUIPMENT AND GASKETED FITTINGS IN CONDUIT SYSTEMS.

AREA TYPE 4X — OUTDOOR AND INDOOR WET LOCATIONS SUBJECT TO CORROSION. CONDUIT SYSTEM SHOULD BE PVC COATED RIGID GALVANIZED STEEL WITH PVC COATED FITTINGS, BOXES, AND STAINLESS STEEL HARDWARE.

GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS NOT SHOWN ON THE PLANS. THIS SHALL INCLUDE ALL CONDUITS SHOWN ON THE ONE-LINES AND HOME-RUNS SHOWN ON THE PLAN DRAWINGS. CONDUITS SHALL BE ROUTED AS DEFINED IN THE SPECIFICATIONS.
2. SPARE WIRES SHALL BE TAPED AND COILED.
3. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN VALUE SHOWN, THE CABLE CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE ENLARGED, AS REQUIRED, TO ACCOMODATE THE HIGHER VALUE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
5. LIGHTING AND RECEPTACLE CIRCUITS DESIGNATED ON THE FLOOR PLANS ARE NOT SHOWN ON THE ONE-LINES. CONDUCTORS FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM NO. 12 AWG. CONDUIT FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM ¾".
6. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETC., NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT.

GENERAL NOTES

1. SOLID LINES —— INDICATE NEW WORK OR EQUIPMENT.
2. DOTTED LINES ····· INDICATE EXISTING WORK OR EQUIPMENT.
3. DASHED LINES – – – INDICATE FUTURE WORK OR EQUIPMENT.
4. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
5. INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES.
   A. ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
   B. FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
   C. SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
   D. DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE, CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.
6. CLOUDED MARKINGS INDICATE WORK IN EXISTING AREAS THAT IS NEW OR NEW WORK ON AN EXISTING PIECE OF EQUIPMENT.

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LITTLETON, CO 80127
(720) 344-7771

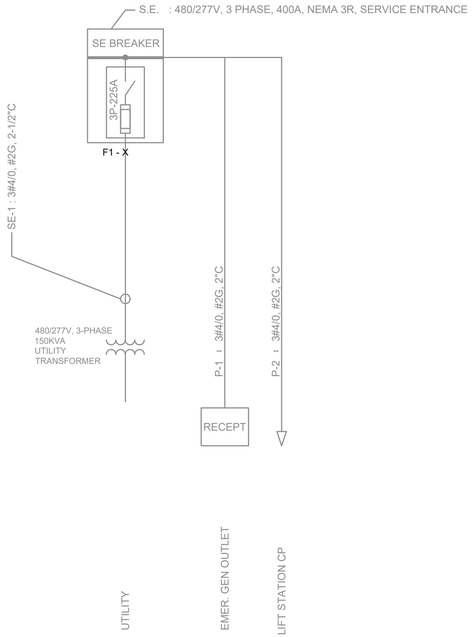
NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

DESIGNED BY:	NPD
DRAWN BY:	NPD
CHECKED BY:	TFW
JOB #:	1071.5e
DATE:	APRIL 2021

CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

LEGEND

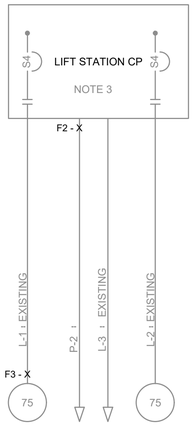
SHEET NO.
E0.0



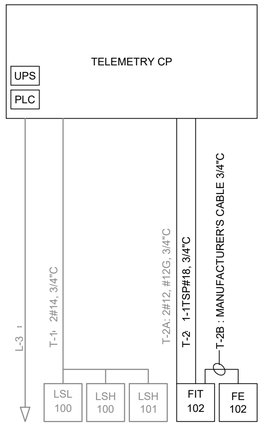
SERVICE ENTRANCE
ONE-LINE DIAGRAM
(ALL EXISTING)

NOTES:
1. FLOW METER SHALL BE ORDERED WITH SUBMERSIBLE KIT. SEE DRAWINGS C2.1 AND CD2.1 FOR ADDITIONAL DETAIL.
2. TELEMETRY PANEL SHALL BE REMOVED AND REPLACED WITH:
   A. SIEMENS SIMATIC 1212C (PN: 6ES7 212-1HE40-0XB0) CPU
   B. SIEMENS SM1234 AE/AA - 6ES72344HE320XB0 ANALOG MODULE
   C. 24" X 24" X 12" NEMA 4X ENCLOSURE
   D. UPS
   E. SAMASARA ALARMING SYSTEM THAT SHALL INCLUDE BUT IS NOT LIMITED TO:
      I. MODULAR INDUSTRIAL CONTROLLER (HW-IG41)
      II. ANTENNA ARRAY (ACC-AANT-CBLG)
      III. ANALOG INPUT MODULE (ACC-IG-CAI)
      IV. 12-MONTH LICENSE (LIC-HM-ENT)
      V. CLOUD-CONNECTED MACHINE MONITOR (HW-HM11)
3. A STEPDOWN TRANSFORMER IS LOCATED IN THE LIFT STATION CONTROL PANEL. THE PRIMARY SIDE OF THE TRANSFORMER HAS A FAULT CURRENT VALUE AS SHOWN IN THE FAULT CURRENT TABLE AS FAULT 'F4'.

FAULT CURRENT	
UTILITY	11200
F1	10646
F2	10101
F3	9753
F4	8105



LIFT STATION
CONTROL PANEL
ONE-LINE DIAGRAM
(ALL EXISTING)



TELEMETRY CONTROL PANEL
ONE-LINE DIAGRAM

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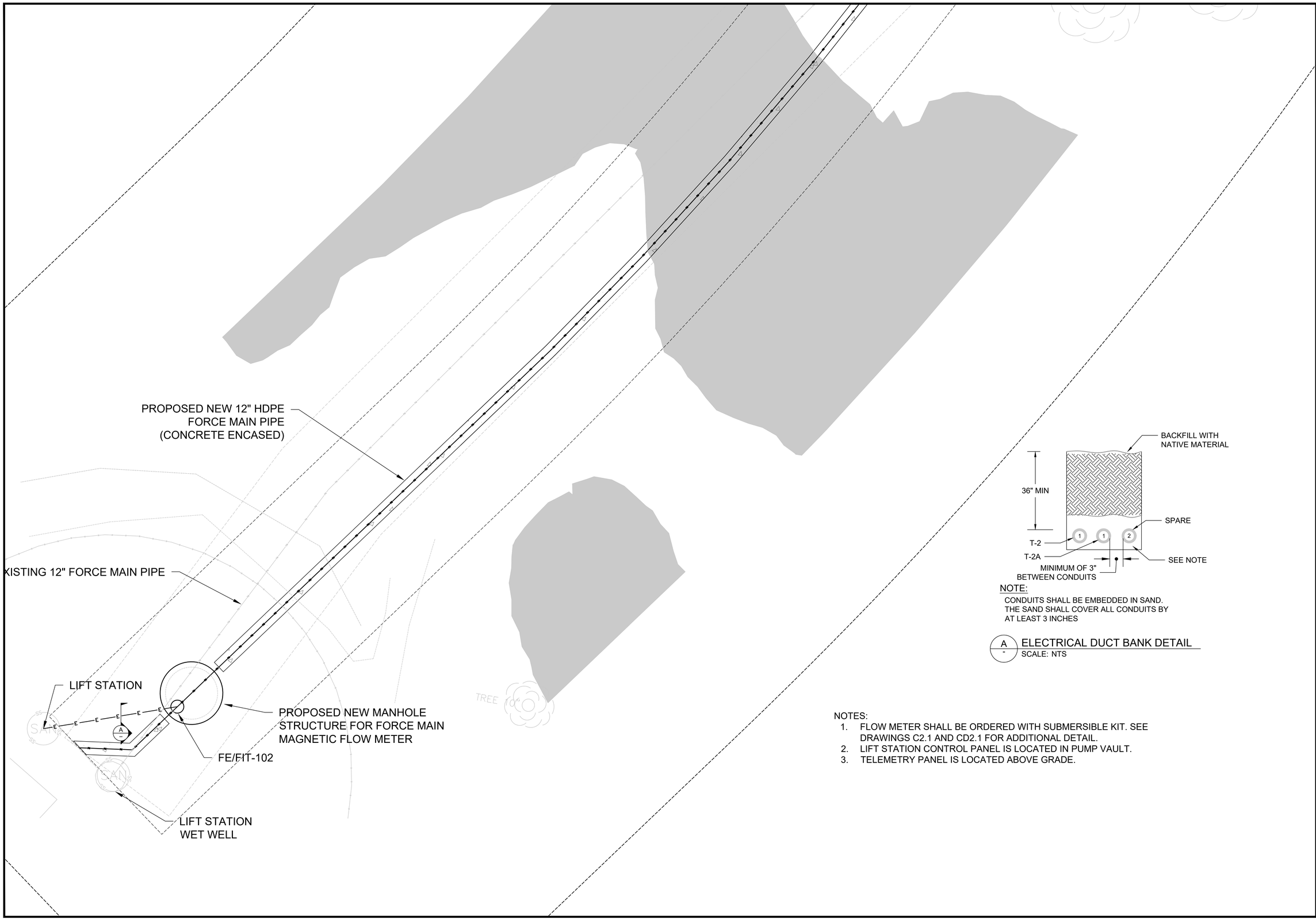
NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
6	DATE	DES	DRWN	DESCRIPTION
5	DATE	DES	DRWN	DESCRIPTION
4	DATE	DES	DRWN	DESCRIPTION
3	DATE	DES	DRWN	DESCRIPTION
2	DATE	DES	DRWN	DESCRIPTION
1	DATE	DES	DRWN	DESCRIPTION

DESIGNED BY:	NPD
DRAWN BY:	NPD
CHECKED BY:	TFW
JOB #:	1071.5e
DATE:	APRIL 2021

CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

LIFT STATION ONE-LINE DIAGRAM

SHEET NO.
E1.0



NOTE:
CONDUITS SHALL BE EMBEDDED IN SAND.
THE SAND SHALL COVER ALL CONDUITS BY
AT LEAST 3 INCHES

A ELECTRICAL DUCT BANK DETAIL
SCALE: NTS

NOTES:
1. FLOW METER SHALL BE ORDERED WITH SUBMERSIBLE KIT. SEE DRAWINGS C2.1 AND CD2.1 FOR ADDITIONAL DETAIL.
2. LIFT STATION CONTROL PANEL IS LOCATED IN PUMP VAULT.
3. TELEMETRY PANEL IS LOCATED ABOVE GRADE.

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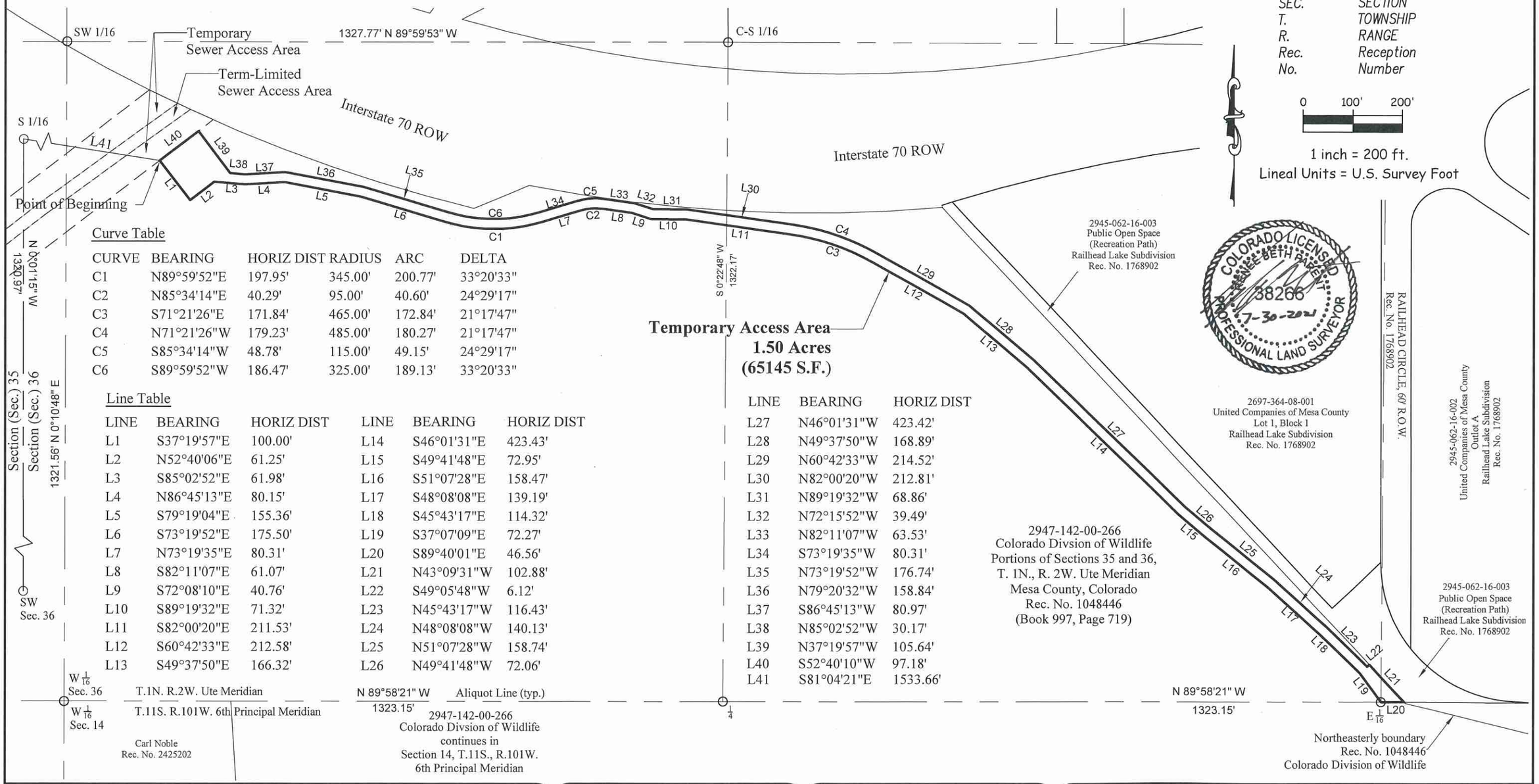
CITY OF GRAND JUNCTION
TIARA RADO FORCE MAIN REPLACEMENT
GRAND JUNCTION, COLORADO

LIFT STATION SITE PLAN VIEW

SHEET NO.
E2.0

Exhibit B
Temporary Access Area with City of Grand Junction



ABBREVIATIONS

P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
R.O.W.	RIGHT OF WAY
SEC.	SECTION
T.	TOWNSHIP
R.	RANGE
Rec.	Reception
No.	Number

0 100' 200'

1 inch = 200 ft.
Lineal Units = U.S. Survey Foot

COLORADO LICENSED
RENEE BETH ALLEN
38266
7-30-2021
PROFESSIONAL LAND SURVEYOR

Curve Table

CURVE	BEARING	HORIZ DIST	RADIUS	ARC	DELTA
C1	N89°59'52"E	197.95'	345.00'	200.77'	33°20'33"
C2	N85°34'14"E	40.29'	95.00'	40.60'	24°29'17"
C3	S71°21'26"E	171.84'	465.00'	172.84'	21°17'47"
C4	N71°21'26"W	179.23'	485.00'	180.27'	21°17'47"
C5	S85°34'14"W	48.78'	115.00'	49.15'	24°29'17"
C6	S89°59'52"W	186.47'	325.00'	189.13'	33°20'33"

Line Table

LINE	BEARING	HORIZ DIST	LINE	BEARING	HORIZ DIST
L1	S37°19'57"E	100.00'	L14	S46°01'31"E	423.43'
L2	N52°40'06"E	61.25'	L15	S49°41'48"E	72.95'
L3	S85°02'52"E	61.98'	L16	S51°07'28"E	158.47'
L4	N86°45'13"E	80.15'	L17	S48°08'08"E	139.19'
L5	S79°19'04"E	155.36'	L18	S45°43'17"E	114.32'
L6	S73°19'52"E	175.50'	L19	S37°07'09"E	72.27'
L7	N73°19'35"E	80.31'	L20	S89°40'01"E	46.56'
L8	S82°11'07"E	61.07'	L21	N43°09'31"W	102.88'
L9	S72°08'10"E	40.76'	L22	S49°05'48"W	6.12'
L10	S89°19'32"E	71.32'	L23	N45°43'17"W	116.43'
L11	S82°00'20"E	211.53'	L24	N48°08'08"W	140.13'
L12	S60°42'33"E	212.58'	L25	N51°07'28"W	158.74'
L13	S49°37'50"E	166.32'	L26	N49°41'48"W	72.06'

LINE	BEARING	HORIZ DIST
L27	N46°01'31"W	423.42'
L28	N49°37'50"W	168.89'
L29	N60°42'33"W	214.52'
L30	N82°00'20"W	212.81'
L31	N89°19'32"W	68.86'
L32	N72°15'52"W	39.49'
L33	N82°11'07"W	63.53'
L34	S73°19'35"W	80.31'
L35	N73°19'52"W	176.74'
L36	N79°20'32"W	158.84'
L37	S86°45'13"W	80.97'
L38	N85°02'52"W	30.17'
L39	N37°19'57"W	105.64'
L40	S52°40'10"W	97.18'
L41	S81°04'21"E	1533.66'

The sketch and description shown hereon has been derived from subdivision plats and deed descriptions as they appear in the office of the Mesa County Clerk and Recorder and monuments as shown. This sketch does not constitute a legal boundary survey, and is not intended to be used as a means for establishing or verifying property boundary lines.

DRAWN BY R.B.P. 7-30-21
CHECKED BY L.C. & K.H.

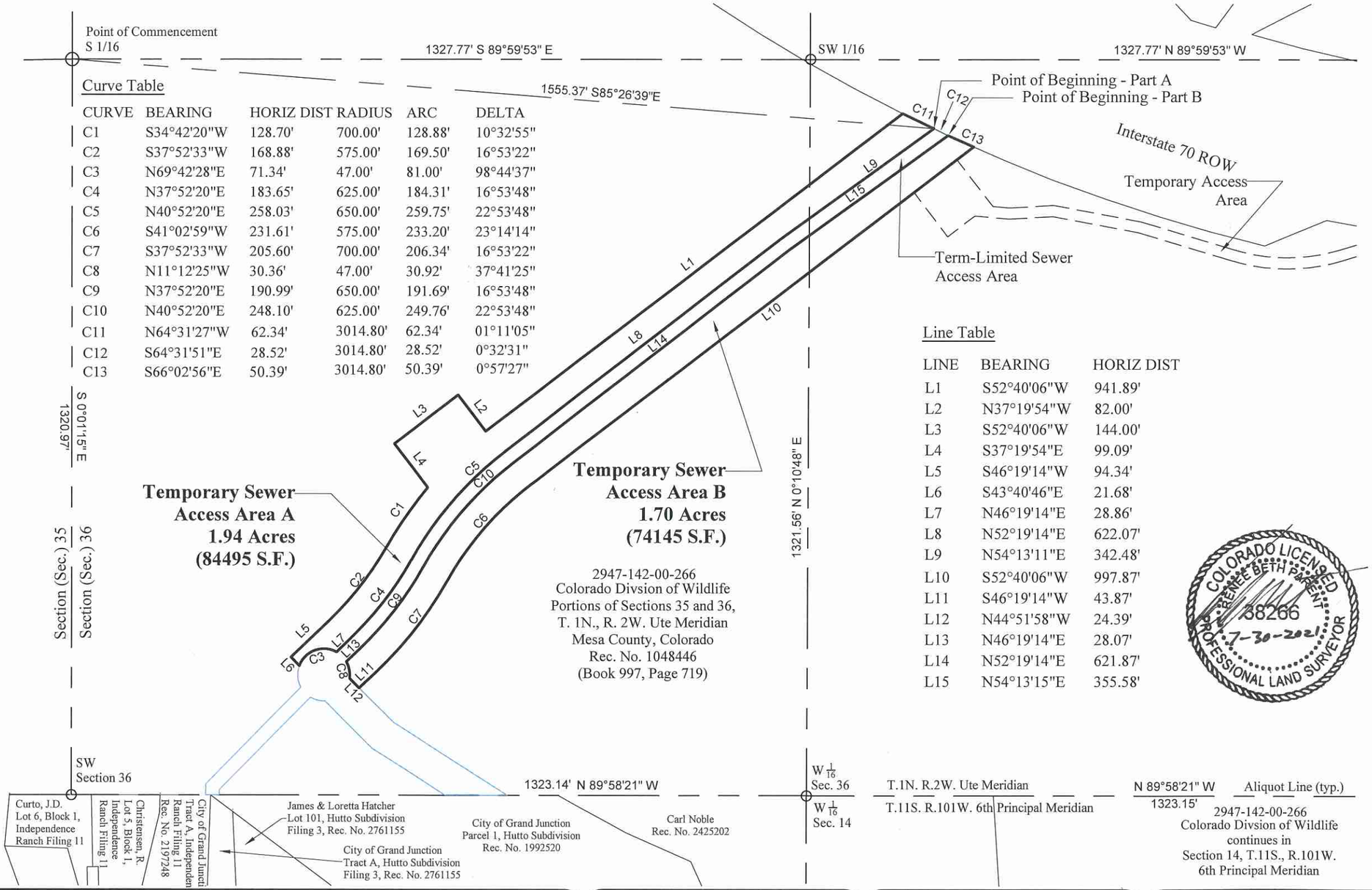
CITY OF Grand Junction COLORADO

Department of Public Works
333 West Avenue, Building C
Grand Junction , CO 81501

Tiara Rado Force Main Project
Portion of SW 1/4 and SE 1/4 Section 36, Township 1 North (T.1N.), Range 2 West (R.2W.), Ute Meridian, Mesa County, Colorado

SHEET NO. 1
OF 1

Exhibit B
Temporary Sewer Access Area with City of Grand Junction



Curve Table

CURVE	BEARING	HORIZ DIST	RADIUS	ARC	DELTA
C1	S34°42'20"W	128.70'	700.00'	128.88'	10°32'55"
C2	S37°52'33"W	168.88'	575.00'	169.50'	16°53'22"
C3	N69°42'28"E	71.34'	47.00'	81.00'	98°44'37"
C4	N37°52'20"E	183.65'	625.00'	184.31'	16°53'48"
C5	N40°52'20"E	258.03'	650.00'	259.75'	22°53'48"
C6	S41°02'59"W	231.61'	575.00'	233.20'	23°14'14"
C7	S37°52'33"W	205.60'	700.00'	206.34'	16°53'22"
C8	N11°12'25"W	30.36'	47.00'	30.92'	37°41'25"
C9	N37°52'20"E	190.99'	650.00'	191.69'	16°53'48"
C10	N40°52'20"E	248.10'	625.00'	249.76'	22°53'48"
C11	N64°31'27"W	62.34'	3014.80'	62.34'	01°11'05"
C12	S64°31'51"E	28.52'	3014.80'	28.52'	0°32'31"
C13	S66°02'56"E	50.39'	3014.80'	50.39'	0°57'27"

Line Table

LINE	BEARING	HORIZ DIST
L1	S52°40'06"W	941.89'
L2	N37°19'54"W	82.00'
L3	S52°40'06"W	144.00'
L4	S37°19'54"E	99.09'
L5	S46°19'14"W	94.34'
L6	S43°40'46"E	21.68'
L7	N46°19'14"E	28.86'
L8	N52°19'14"E	622.07'
L9	N54°13'11"E	342.48'
L10	S52°40'06"W	997.87'
L11	S46°19'14"W	43.87'
L12	N44°51'58"W	24.39'
L13	N46°19'14"E	28.07'
L14	N52°19'14"E	621.87'
L15	N54°13'15"E	355.58'

COLORADO LICENSED
RENEE BETH PARENT
38266
7-30-2021
PROFESSIONAL LAND SURVEYOR

ABBREVIATIONS

P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
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T.	TOWNSHIP
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Rec.	Reception
No.	Number

0 100' 200'

1 inch = 200 ft.
Lineal Units = U.S. Survey Foot

The sketch and description shown hereon has been derived from subdivision plats and deed descriptions as they appear in the office of the Mesa County Clerk and Recorder and monuments as shown. This sketch does not constitute a legal boundary survey, and is not intended to be used as a means for establishing or verifying property boundary lines.

DRAWN BY R.B.P. 7-30-21
CHECKED BY L.C. & K.H.

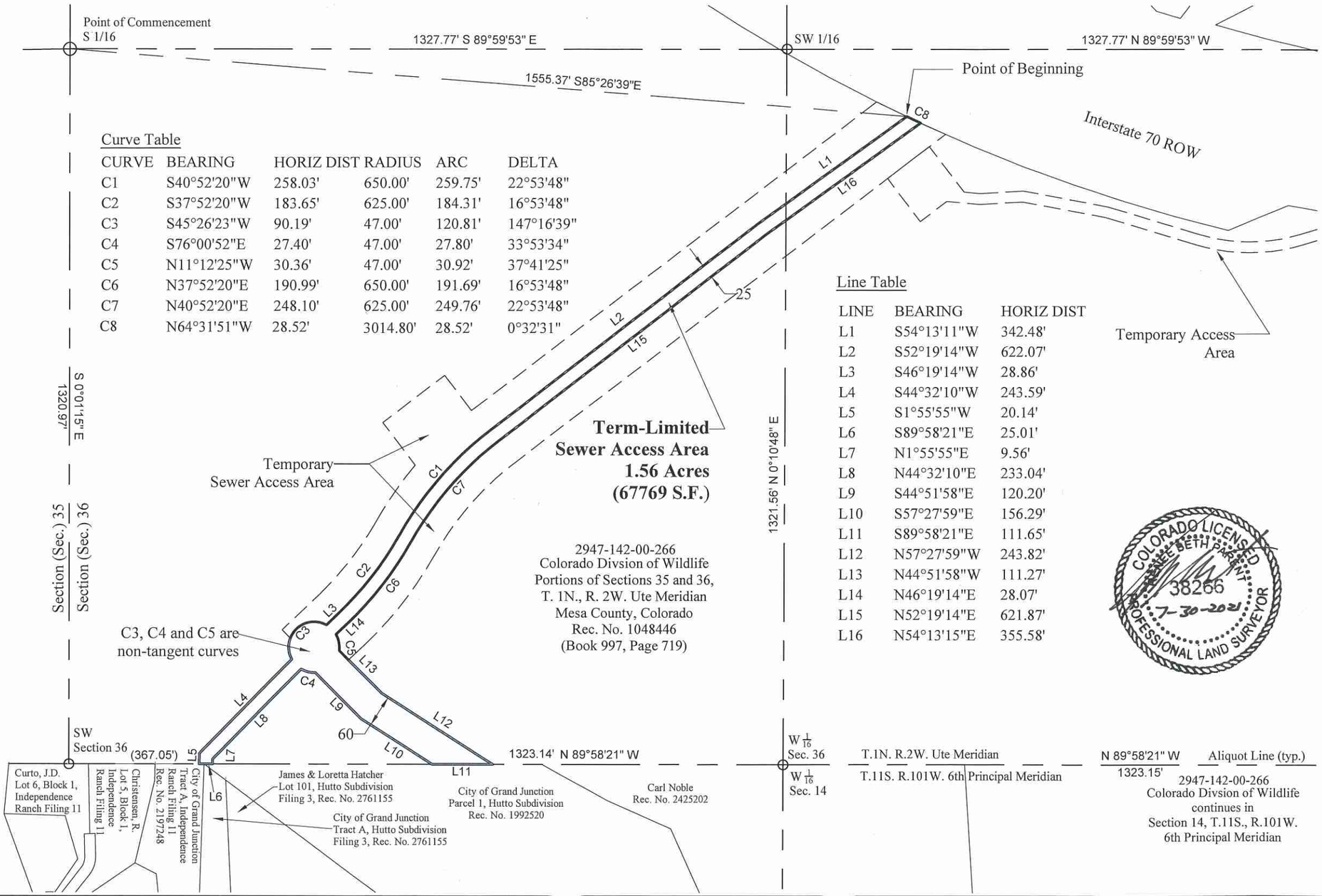
CITY OF Grand Junction COLORADO

Department of Public Works
333 West Avenue, Building C
Grand Junction , CO 81501

Tiara Rado Force Main Project
Portion of SW ¼ Section 36, Township 1 North (T.1N.), Range 2 West (R.2W.), Ute Meridian, Mesa County, Colorado

SHEET NO. 1
OF 1

Exhibit B
Term-Limited Sewer Access Area with City of Grand Junction



Curve Table

CURVE	BEARING	HORIZ DIST	RADIUS	ARC	DELTA
C1	S40°52'20"W	258.03'	650.00'	259.75'	22°53'48"
C2	S37°52'20"W	183.65'	625.00'	184.31'	16°53'48"
C3	S45°26'23"W	90.19'	47.00'	120.81'	147°16'39"
C4	S76°00'52"E	27.40'	47.00'	27.80'	33°53'34"
C5	N11°12'25"W	30.36'	47.00'	30.92'	37°41'25"
C6	N37°52'20"E	190.99'	650.00'	191.69'	16°53'48"
C7	N40°52'20"E	248.10'	625.00'	249.76'	22°53'48"
C8	N64°31'51"W	28.52'	3014.80'	28.52'	0°32'31"

Line Table

LINE	BEARING	HORIZ DIST
L1	S54°13'11"W	342.48'
L2	S52°19'14"W	622.07'
L3	S46°19'14"W	28.86'
L4	S44°32'10"W	243.59'
L5	S1°55'55"W	20.14'
L6	S89°58'21"E	25.01'
L7	N1°55'55"E	9.56'
L8	N44°32'10"E	233.04'
L9	S44°51'58"E	120.20'
L10	S57°27'59"E	156.29'
L11	S89°58'21"E	111.65'
L12	N57°27'59"W	243.82'
L13	N44°51'58"W	111.27'
L14	N46°19'14"E	28.07'
L15	N52°19'14"E	621.87'
L16	N54°13'15"E	355.58'

ABBREVIATIONS

P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
R.O.W.	RIGHT OF WAY
SEC.	SECTION
T.	TOWNSHIP
R.	RANGE
Rec.	Reception
No.	Number

COLORADO LICENSED
CHARLES BETH SPARKS
38266
7-30-2021
PROFESSIONAL LAND SURVEYOR

The sketch and description shown hereon has been derived from subdivision plats and deed descriptions as they appear in the office of the Mesa County Clerk and Recorder and monuments as shown. This sketch does not constitute a legal boundary survey, and is not intended to be used as a means for establishing or verifying property boundary lines.

DRAWN BY R.B.P. 7-30-21
CHECKED BY L.C. & K.H.

CITY OF Grand Junction COLORADO

Department of Public Works
333 West Avenue, Building C
Grand Junction , CO 81501

Tiara Rado Force Main Project
Portion of SW $\frac{1}{4}$ Section 36, Township 1 North (T.1N.), Range 2 West (R.2W.), Ute Meridian, Mesa County, Colorado

SHEET NO. 1
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