CITY OF NORTH SALT LAKE

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

PROJECT # GEO.021

LOCATED BETWEEN EAGLEPOINT DRIVE AND PARKWAY DRIVE IN THE CITY OF NORTH SALT LAKE

GILSON ENGINEERING, INC.

CONSULTING ENGINEERS AND SURVEYORS
12401 SOUTH 450 EAST DRAPER, UT. 84020
BUILDING C, UNIT 2
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PROFESSIONAL ENGINEER
2/18/15
No. 4939508-2202
JAMES J. MILLIGAN
STATE OF UTAH

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
GEO.021

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ABBREVIATIONS

ADJ	ADJUST
ADS	ADVANCE DRAINAGE SYSTEM
ARV	AIR RELEASE VALVE
BC	BAR AND CAP
BOW	BACK OF WALK
BVCE	BEGINNING VERTICAL CURVE ELEV.
BVCS	BEGINNING VERTICAL CURVE STATION
CB	CATCH BASIN
CBL	CABLE
CH	CHORD BEARING
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
COR.	SECTION CORNER
D	DELTA ANGLE
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EG	EXISTING GRADE
ELEV	ELEVATION
EOC	EDGE OF CONCRETE
EP	EDGE OF PAVEMENT
EVCE	END VERTICAL CURVE ELEV.
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EX	EXISTING
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FO	FIBER OPTICS
FT	FOOT
GB	GRADE BREAK
HC	HANDICAP
HDPE	HIGH DENSITY POLY ETHYLENE
HP	HIGH POINT
INV.	INVERT
IRR	IRRIGATION
L.F.	LINEAR FEET
LIP	LIP OF CURB
LP	LOW POINT
LT.	LEFT
MAX.	MAXIMUM
MH	MANHOLE
MIN.	MINIMUM
MON	MONUMENT
NTS	NOT TO SCALE
OC	ON CENTER
OHP	OVER HEAD POWER
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PRV	PRESSURE REDUCING VALVE
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
ROW	RIGHT OF WAY
RT.	RIGHT
S	SEWER
SD	STORM DRAIN
SER	SOUTH END RADIUS
SSMH	SEWER MANHOLE
STA	STATION
STD	STANDARD
SW	SECONDARY WATER
TBC	TOP BACK OF CURB
TOA	TOP OF ASPHALT
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
UG	UNDER GROUND POWER
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WATER
WM	WATER METER
WV	WATER VALVE

IDENTIFICATION SYSTEM

SEE DETAIL 5-C.1

TYPICAL DETAIL CALL OUT

DIRECTION OF VIEW — SECTION NUMBER — 1 / C.13 — *DRAWING SECTION IS REFERENCE TO

TYPICAL SECTION CUT

DESCRIPTION — DETAIL NUMBER — DETAIL — SCALE: N.T.S. — SCALE — 1 / C-1 — *DRAWING DETAIL IS REFERENCED TO

TYPICAL DETAIL IDENTIFICATION

DESCRIPTION — SECTION NUMBER — SECTION — SCALE: N.T.S. — SCALE — 1 / C-1 — *DRAWING WHICH SECTION IS TAKEN

TYPICAL SECTION IDENTIFICATION

*NOTE: IF DETAIL OR SECTION IS REFERENCED TO MULTIPLE SHEETS THE SHEET NUMBER WILL INDICATE 'VARIES'

LEGEND AND SYMBOLS

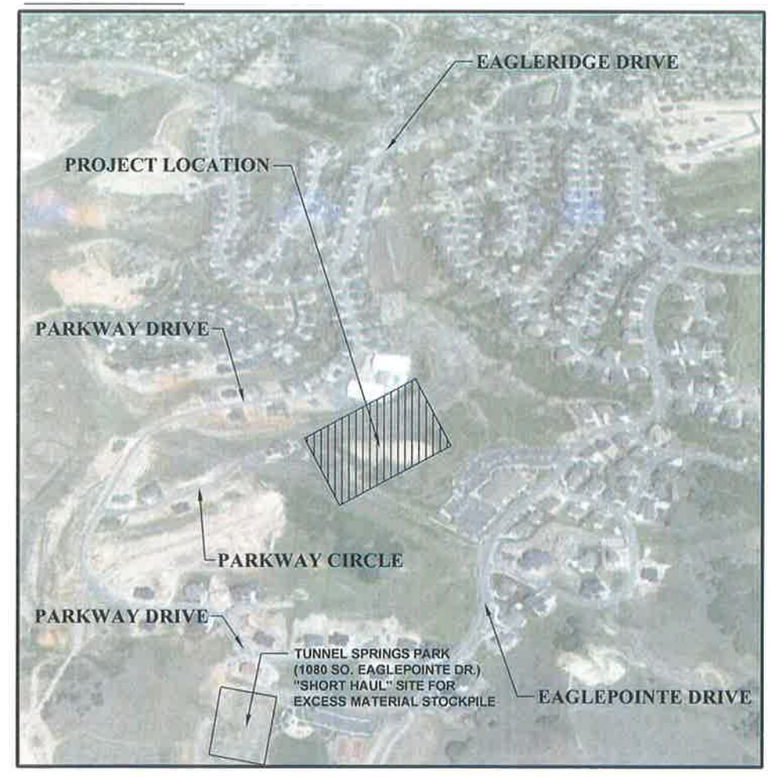
- SECTION CORNER & LINE (FOUND)
- BOUNDARY/PHASE LINE
- ADJACENT PL or LOT LINES
- RIGHT-OF-WAY LINE
- CENTERLINE of ROAD
- EASEMENT LINE
- CURB & GUTTER
- = EDGE OF ASPHALT
- FENCE
- LOT LINE
- DAYLIGHT- CUT
- DAYLIGHT- FILL
- PROPOSED INDEX CONTOUR (4475)
- PROPOSED INTERMEDIATE CONTOUR
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- SANITARY SEWER MANHOLE & PIPE
- STORM DRAIN CLEAN OUT & PIPE
- CATCH BASIN
- 4' COMBO BOX
- 4' INLET
- MANHOLE & CULINARY WATER LINE
- WATER VALVE
- = PROPOSED FIRE HYDRANT
- POWER
- STREET LIGHT
- GAS LINE & MANHOLE
- TELEPHONE LINE
- CABLE TELEVISION LINE
- DRAINAGE / DITCH CENTERLINE
- IRRIGATION LINE
- AIR RELIEF VALVE
- TELE-MH
- GAS-MH
- ELEC MH
- POWERPOLE
- GUY WIRE
- STREET SIGN
- TELE-RISE
- TELE-VAULT
- UTIL-POLE
- S-1 SEWER TAG
- SD-1 SD-TAG
- 4400.00 TBC SPOT ELEVATION
- 4400 EXISTING ELEVATION
- 4442 PROPOSED ELEVATION
- = PROPOSED ASPHALT
- = PROPOSED CONCRETE

*NOTE: ALL EXISTING FEATURES WILL BE IN A SHADED LINE

SHEET INDEX

	COVER SHEET
G.101	INDEX AND LEGEND
G.102	GENERAL NOTES / UDOT NOTES
C.101	EXISTING SITE PLAN
C.102	PROPOSED GRADING PLAN ALT. 1
C.103	PROPOSED DRAINAGE AND LOWER UTILITIES
C.104	PROPOSED UPPER UTILITY RELOCATION AND DEMOLITION PLAN
C.301	PROFILE WALL 1:1 (1)
C.302	PROFILE WALL 1:1 (2)
C.303	PROFILE WALL 1:1 (3)
C.304	PROFILE PARKING LOT (1)
C.305	PROFILE PARKING LOT (2)
C.306	PROFILE PARKING LOT (3)
C.307	PROFILE TENNIS COURT (1)
C.308	PROFILE TENNIS COURT (2)
C.309	PROFILE EVANS PROPERTY
C.310	PROFILE STORM DRAIN
W.101	WALL PROFILE
W.102	WALL PROFILE
D.101	DETAILS
D.102	DETAILS
D.103	DETAILS
D.104	DETAILS
ER.101	SWPP PLAN
ER.102	BMP DETAILS

LOCATION MAP



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CITY OF NORTH SALT LAKE

REV	DATE	BY	COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: INDEX
DESIGNED/DRAWN BY: AL
CHECKED
APPROVED

INDEX AND LEGEND

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: A

PROJ # GEO.021

G.101

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GENERAL NOTES

1. THIS DESIGN IS AN ORIGINAL UNPUBLISHED WORK AND MAY NOT BE DUPLICATED, PUBLISHED AND/OR USED WITHOUT THE WRITTEN CONSENT OF GILSON ENGINEERING, INC.

2. THESE SHEETS - LISTED BY DRAWING INDEX, ALL ACCOMPANYING SPECIFICATIONS FOR MATERIALS, WORKMANSHIP QUALITY, AND NOTES HAVE BEEN PREPARED SOLELY FOR THE CONSTRUCTION AND FINISH OF PROJECT IMPROVEMENTS, COMPLETE AND READY FOR USE.

3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH PERTINENT JURISDICTIONAL CODES, RESTRICTIONS, COVENANTS, AND/OR ORDINANCES. ANY CONFLICT BETWEEN DESIGN AND REQUIREMENT SHALL BE REPORTED TO GILSON ENGINEERING, INC. BEFORE PROCEEDING. FAILURE TO DO SO VOIDS THE DESIGN.

4. ANY AND ALL PROPOSED CHANGE, MODIFICATIONS AND/OR SUBSTITUTION SHALL BE REPORTED TO GILSON ENGINEERING, INC. BEFORE PROCEEDING. ANY DEVIATION FROM THE CONTRACT DOCUMENTS, WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF GILSON ENGINEERING, INC. VOIDS THE DESIGN.

5. IN THE EVENT OF CONFLICT BETWEEN THE DESIGN DOCUMENTS AND/OR JURISDICTIONAL REQUIREMENTS, THE MORE RESTRICTIVE FROM THE STANDPOINT OF SAFETY AND PHYSICAL SECURITY SHALL APPLY.

6. THE CITY SHALL BE NOTIFIED OF ANY INSTALLATION OR WORK NECESSARY TO THE FUNCTIONING, SAFETY AND/OR PHYSICAL SECURITY OF DESIGN THAT IS TO BE ENCAPSULATED OR OTHERWISE PERMANENTLY OBSCURED FROM INSPECTION A MINIMUM OF TWO (2) WORKING DAYS BEFORE ENCLOSURE.

7. ANY DAMAGE, DISRUPTION OR COMPROMISE OF AMBIENT RIGHTS-OF-WAY, UTILITIES, OR ENVIRONMENTAL QUALITY SHALL BE IMMEDIATELY RECTIFIED BY THE CONTRACTOR TO THE SATISFACTION OF GILSON ENGINEERING, INC. AT NO COST TO THE OWNER.

8. ALL WORK SHALL BE INSPECTED BY GOVERNING AGENCIES IN ACCORDANCE WITH THEIR REQUIREMENTS. JURISDICTIONAL APPROVAL SHALL BE SECURED BEFORE PROCEEDING WITH WORK.

9. CONTRACTOR IS RESPONSIBLE TO SCHEDULE INSPECTIONS WITH CITY.

CONSTRUCTION NOTES

1. ALL WORK WITHIN THE SITE SHALL CONFORM TO THE CURRENT CITY STANDARDS AND SPECIFICATIONS AND APWA.

2. CONTRACTOR SHALL MEET ALL OF THE REQUIREMENTS ESTABLISHED FOR SAFE TRENCHING. (SEE OSHA AND UOSHA REQUIREMENTS, LATEST EDITIONS).

3. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES BEFORE LAYING PIPE WITHIN 200 FEET OF SAID UTILITIES WHICH MAY BE EXPOSED, DAMAGED OR CROSSED AS SHOWN ON THE DRAWINGS OR AS "BLUE STAKED". CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE UTILITY COMPANY TO MOVE THE UTILITY IF NECESSARY OR OBTAIN PERMISSION FROM THE ENGINEER TO MODIFY GRADES OF PROJECT LINES IN ORDER TO GO AROUND EXISTING UTILITIES.

4. SEWER MAINS, WATER MAINS, GAS MAINS AND OTHER UTILITIES ARE SHOWN ON THE PLANS IN A GENERAL SCHEMATIC WAY ACCORDING TO INFORMATION RECEIVED FROM OTHERS AND SOMETIMES FROM FIELD MEASUREMENTS. THE ACCURACY OR COMPLETENESS OF THE LOCATIONS SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF EXISTING SERVICE CONNECTIONS AND UTILITIES, VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS AND TAKE THE NECESSARY STEPS TO AVOID THEM.

5. SPECIFIC INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS SHALL SUPERSEDE ITEMS COVERED IN THESE DRAWINGS.

UTILITY NOTES

1. CONTRACTOR SHALL VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTING ANY NEW UTILITY LINES. NOTIFY CIVIL ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO ANY CONNECTIONS BEING MADE.

2. WATER METERS SHALL BE INSTALLED PER CURRENT WATER DISTRICT STANDARDS AND SPECIFICATIONS. IT WILL BE THE CONTRACTORS RESPONSIBILITY TO INSTALL ALL ITEMS REQUIRED.

3. WATER LINES, VALVES, FIRE HYDRANTS, FITTINGS ETC. ARE TO BE CONSTRUCTED AS SHOWN. CONTRACTOR IS RESPONSIBLE TO CONSTRUCT ANY VERTICAL ADJUSTMENTS NECESSARY TO CLEAR SEWER, STORM DRAIN OR OTHER UTILITIES AS NECESSARY INCLUDING VALVE BOXES AND HYDRANT SPOOLS TO PROPER GRADE.

4. CONTRACTOR SHALL PROTECT EXISTING PIEZOMETER AND INCLINOMETER MONITORING WELLS DURING CONSTRUCTION. UPON COMPLETION OF GRADING, CONTRACTOR SHALL CUT PVC PIPE TO 6" BELOW GROUND SURFACE, RE-INSTALL PROTECTIVE HANDHOLE AND GROUT/CONCRETE IN PLACE.

5. NO CONSTRUCTION ACTIVITY OF ANY KIND CAN BE PERFORMED ON KERN RIVER'S RIGHT-OF-WAY WITHOUT CONTACTING KERN RIVER, SIGNING AN ENCROACHMENT PERMIT OR AGREEMENT, COMPLYING WITH LOCAL UTILITY ONE-CALL LAWS, AND ENGAGING IN ANY OTHER ACTIONS DEEMED NECESSARY BY KERN RIVER TO PROTECT KERN RIVER'S FACILITIES.

6.ALL CONSTRUCTION ACTIVITIES PERFORMED ON KERN RIVER AND QUESTAR RIGHT OF WAY SHALL BE PERFORMED ACCORDING TO THEIR REQUIREMENTS.

CAUTION NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY: THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO THE NORMAL WORKING HOURS; AND THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

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CITY OF NORTH SALT LAKE

REV DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: GENERAL NOTES
DESIGNED/DRAWN BY: AL
CHECKED
APPROVED

GENERAL NOTES / UDOT NOTES

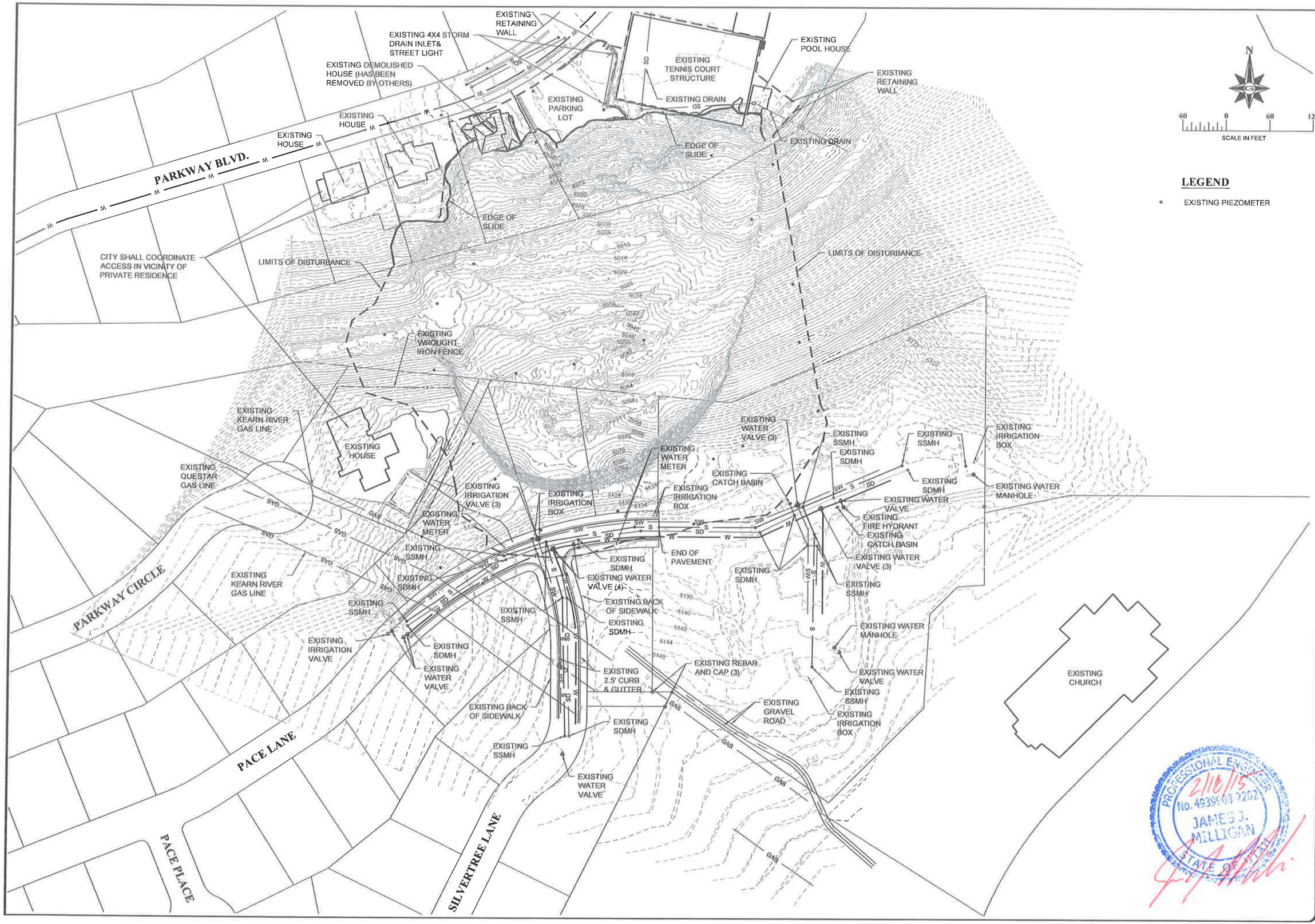
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: A

PROJ. # GEO.021

G.102



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NORTH SALT LAKE CITY

REV DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE FEBRUARY 2015
DRAWING NAME EX SITE PLAN
DESIGNED/DRAWN BY AL
CHECKED
APPROVED

EXISTING SITE PLAN

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: A

PROJ. # GEO.021

C.101

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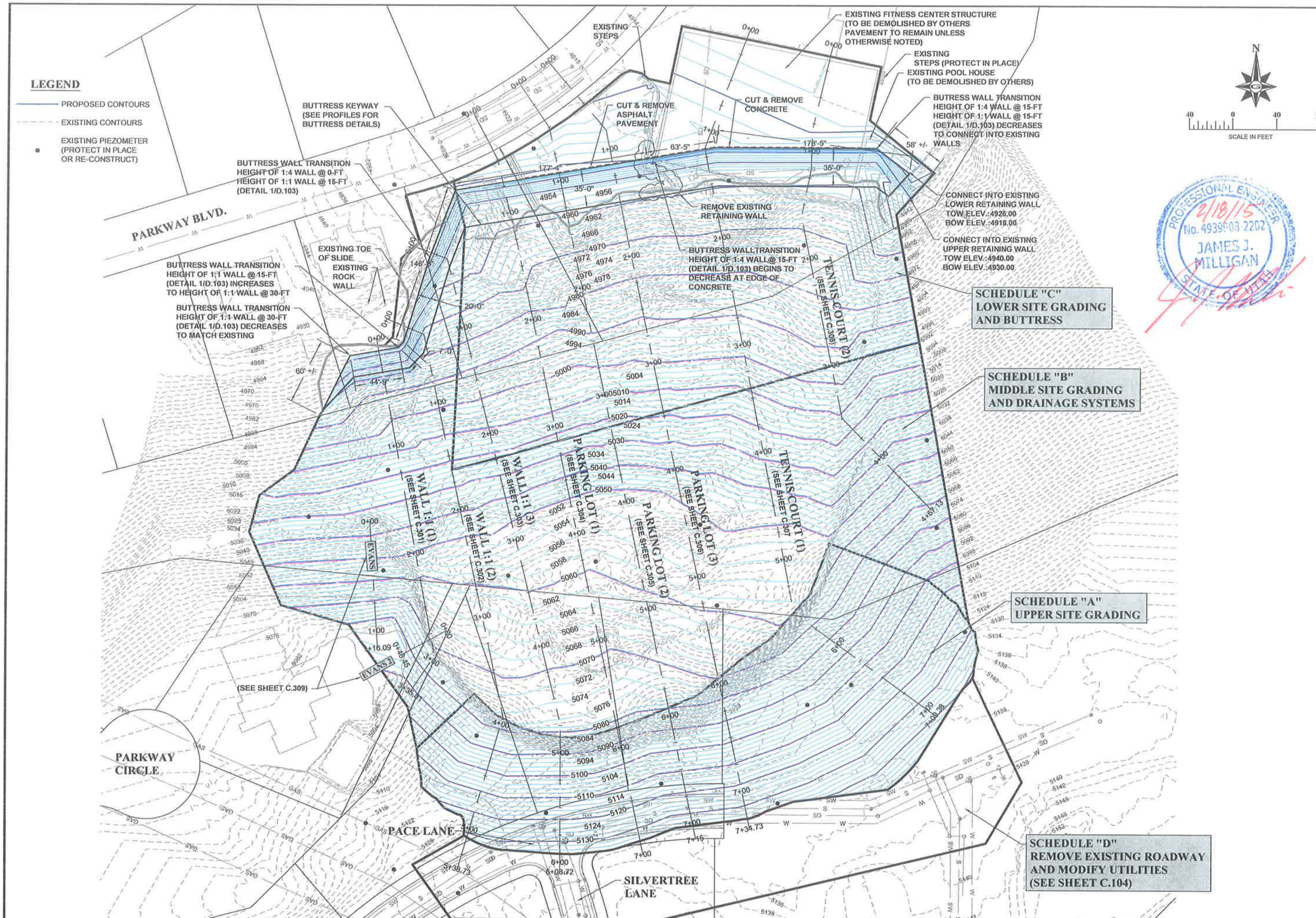

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GILSON ENGINEERING INC.

GeoStrata Engineering & Geoscience

CITY OF NORTH SALT LAKE

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE FEBRUARY 2015

DRAWING NAME C.102 GRADING PLAN

DESIGNED/DRAWN BY AL

CHECKED | APPROVED

PROPOSED GRADING PLAN

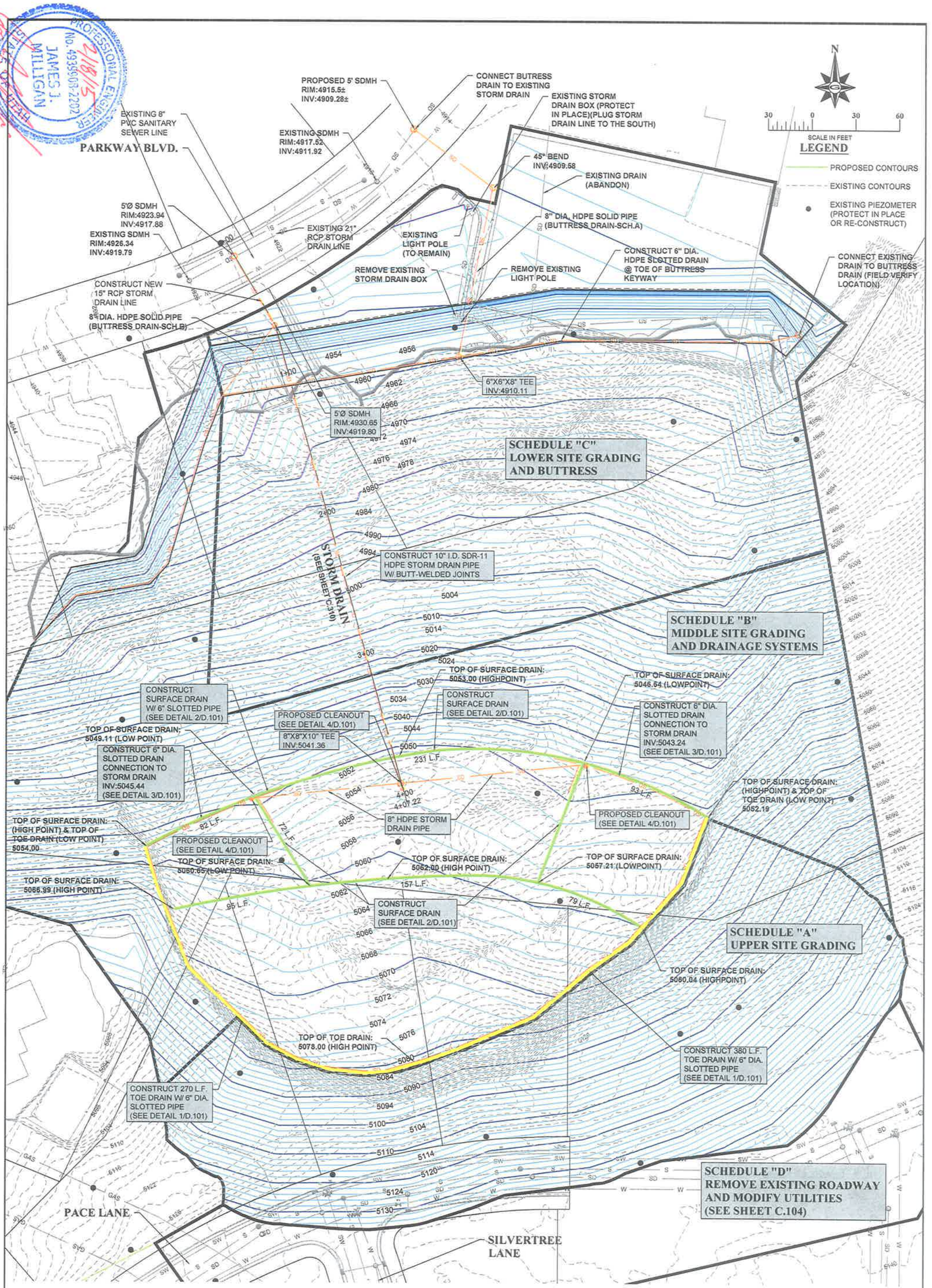
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: A

PROJ. # GEO.021

C.102



C.103

PROJ.# GEO.021

REVISION: A

PROPOSED DRAINAGE AND UTILITIES

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

DATE: FEBRUARY 2015

DRAWING NAME: C.103 DRAINAGE

DESIGNED/DRAWN BY: AL

CHECKED: APPROVED:

REVISIONS

REV	DATE	BY	COMMENTS

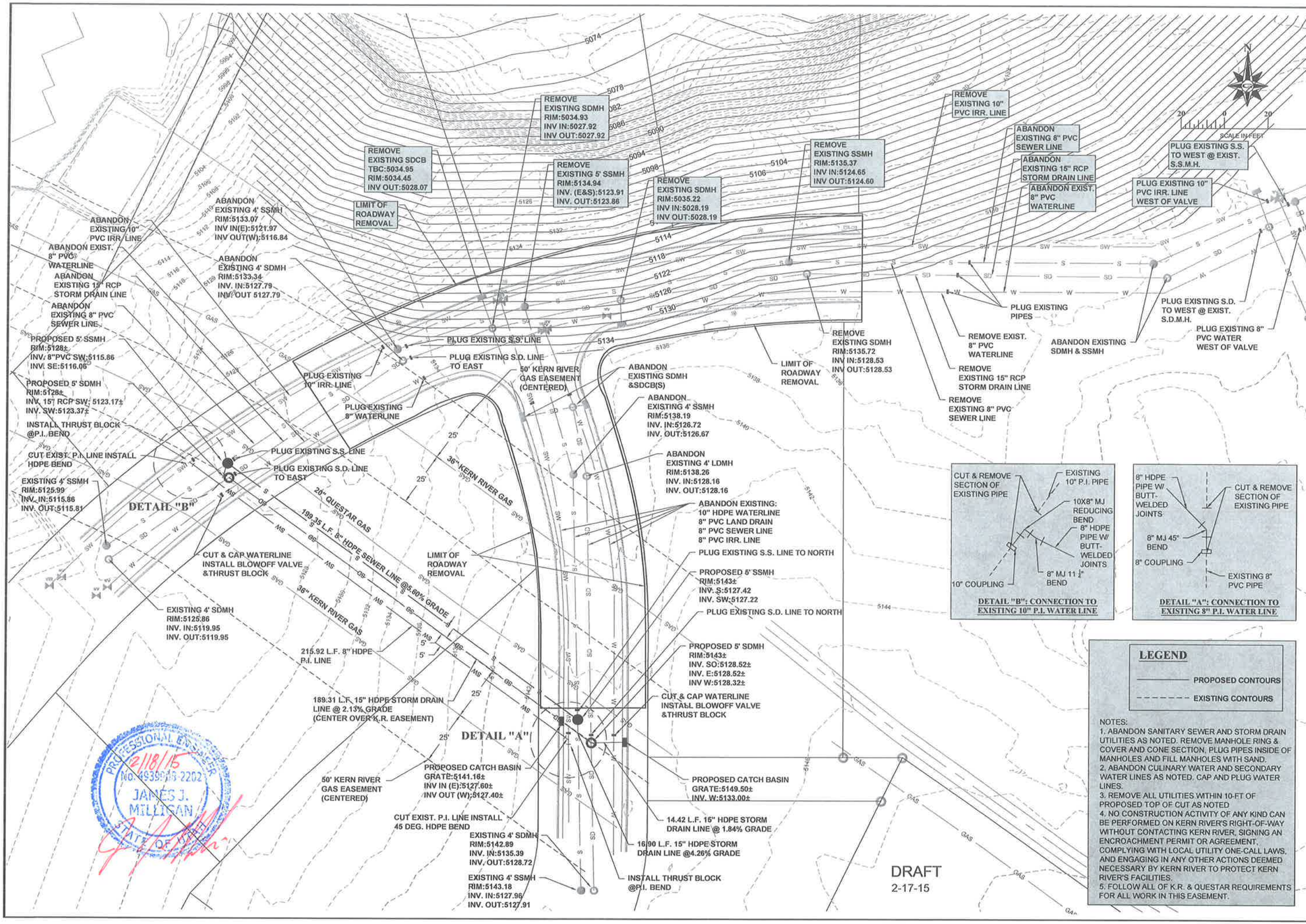
1" SCALE MEASURES 1" ON FULL SIZE SHEETS ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

CITY OF NORTH SALT LAKE UTAH

GeoStrata Engineering & Geosciences

CONSULTING ENGINEERS AND SURVEYORS

GILSON ENGINEERING INC.



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CITY OF NORTH SALT LAKE, UTAH

REVISIONS

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1" SCALE MEASURES 1" ON FULL SIZE SHEETS ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE FEBRUARY 2015
DRAWING NAME C.104
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UTILITY RECONFIGURATION

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION A

PROJ. # GEO.021

C.104

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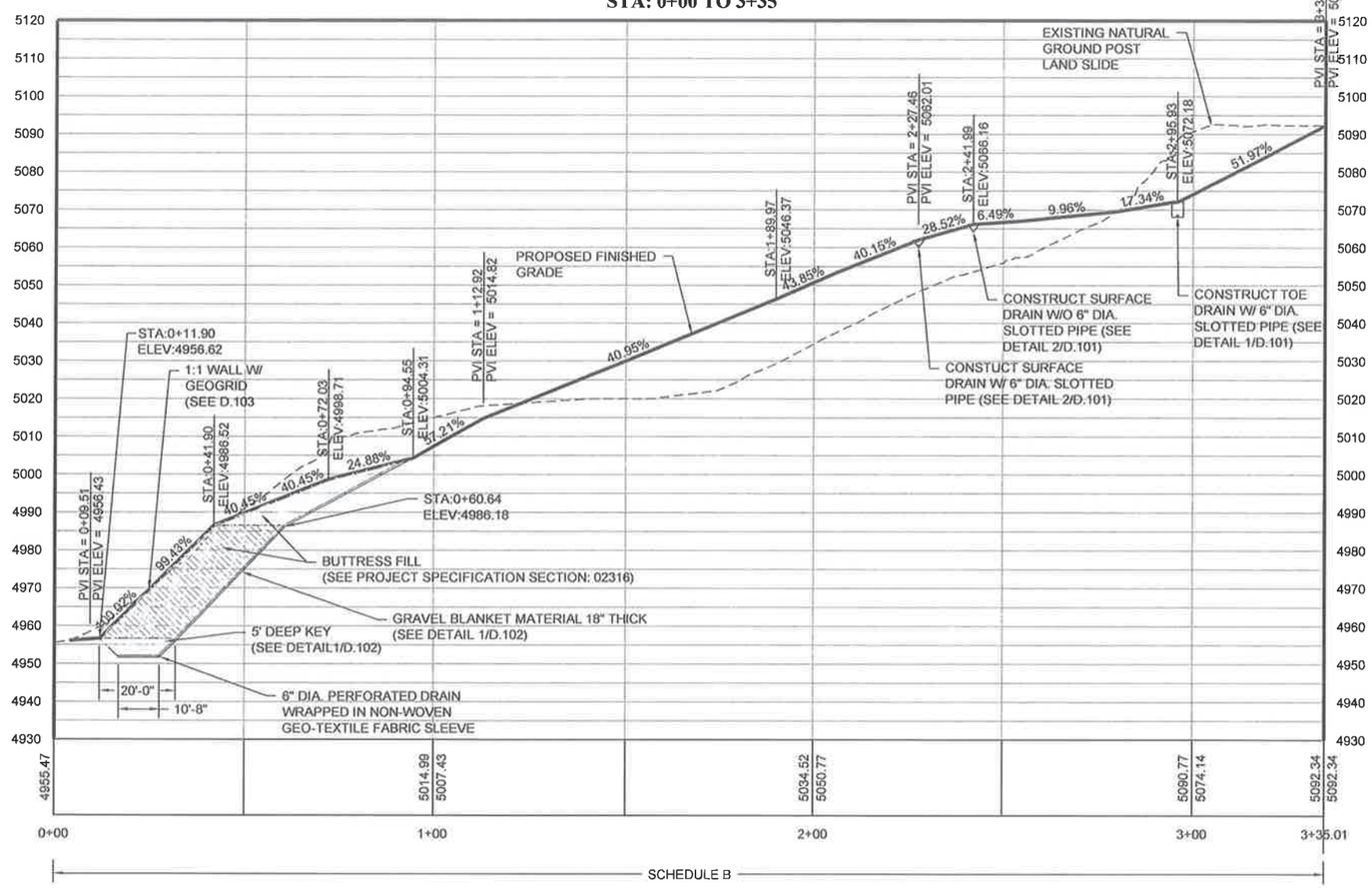
STA: 0+00 TO 3+35



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SCALE:
HOR: 1" = 20'
VER: 1" = 20'

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NORTH SALT LAKE & HILL CITY

REVISIONS			
REV	DATE	BY	COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: C.301 PROFILE
DESIGNED/DRAWN BY: AL
CHECKED
APPROVED

PROFILE WALL 1:1 (1)
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ. # GEO.021
C.301

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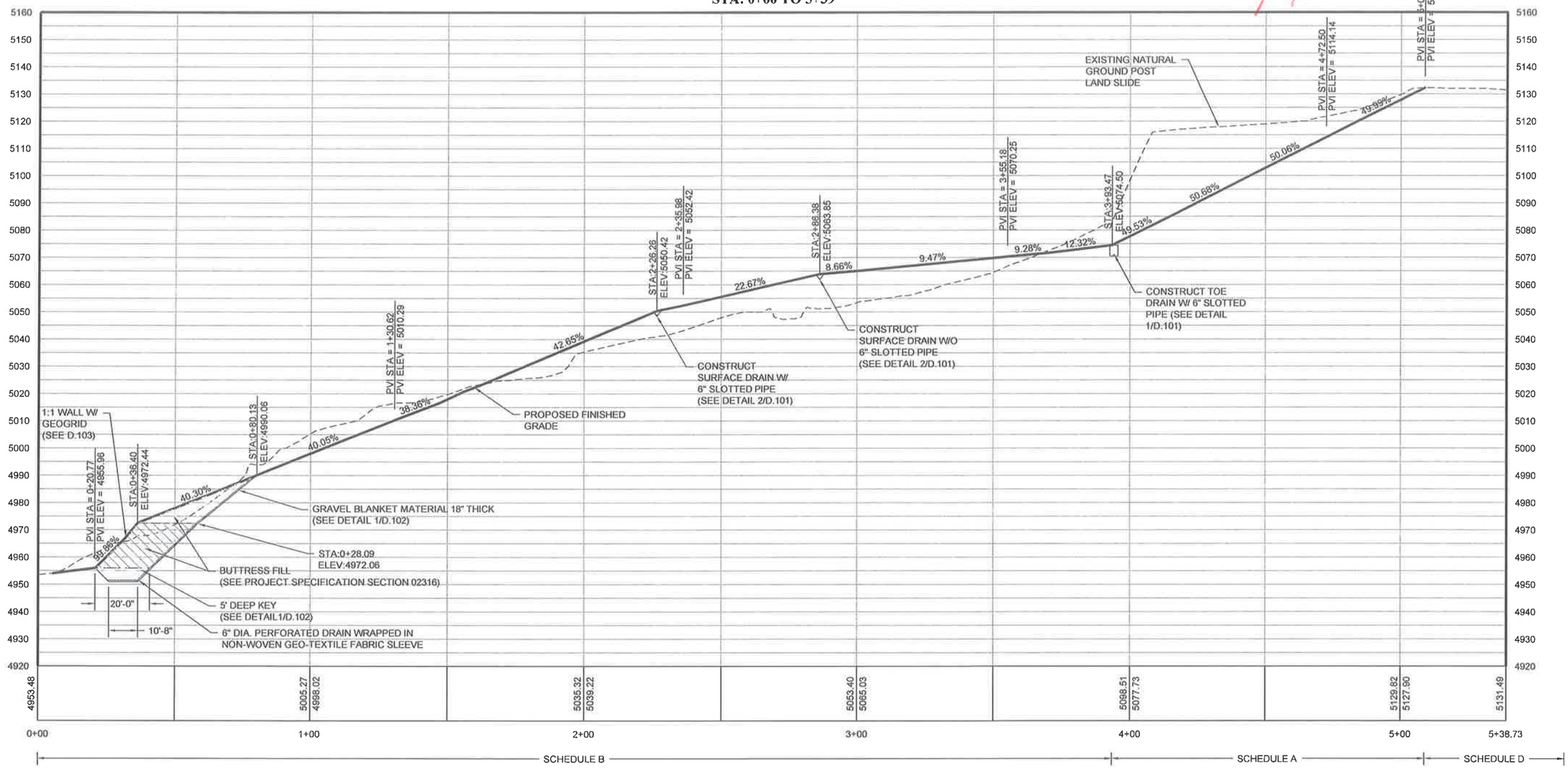

SCALE:
HOR: 1" = 20'
VER: 1" = 20'

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CITY OF NORTH SALT LAKE UTAH

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: C.302 PROFILE
DESIGNED/DRAWN BY: AL
CHECKED
APPROVED

PROFILE WALL 1:1 (2)
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ. # GEO.021
C.302

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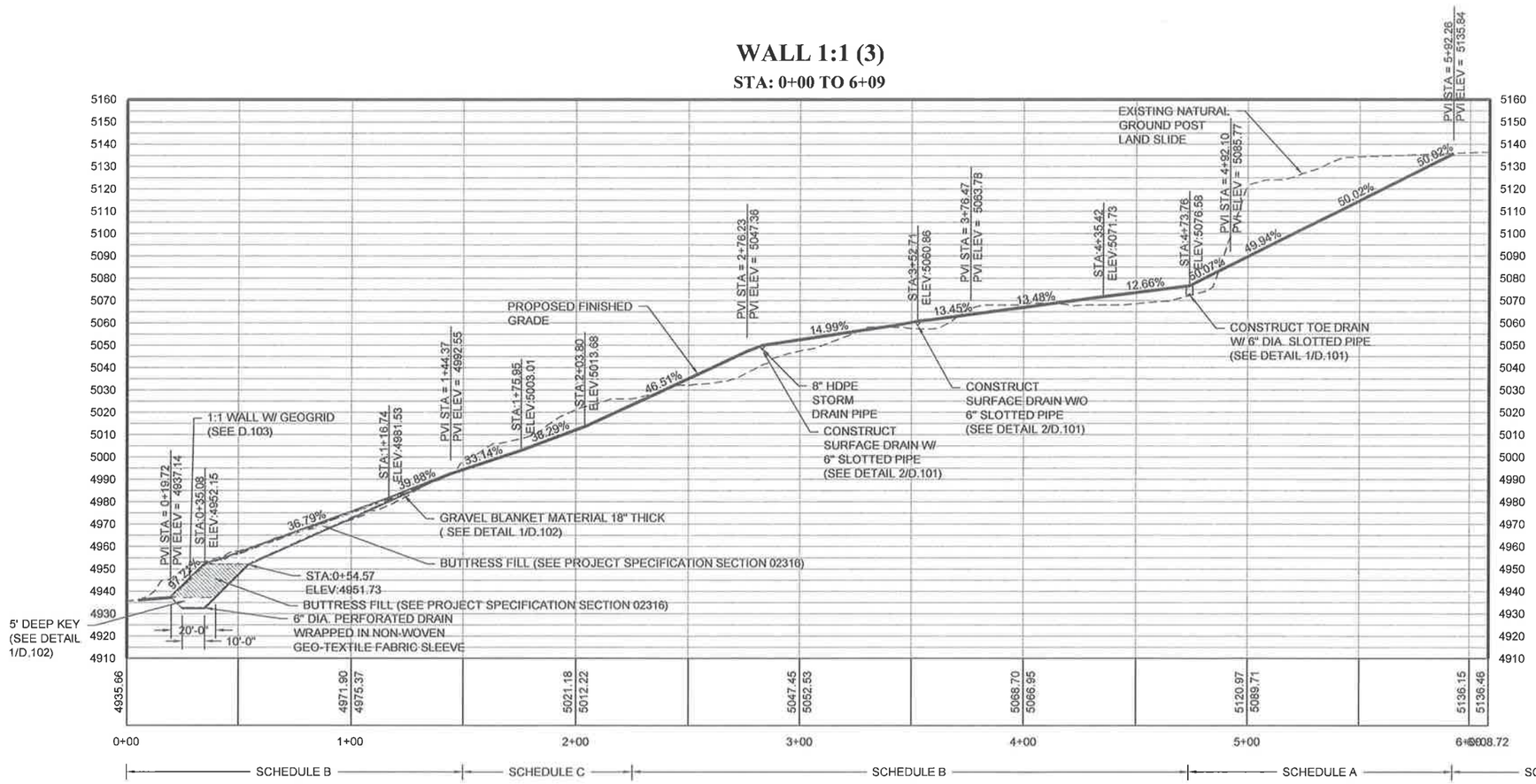

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SCALE:
HOR: 1" = 30'
VER: 1" = 30'

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10653 S. Center Point Way Suite 100 Sandy, UT 84070 801.501.0223 www.geostratagroup.com

NORTH SALT LAKE CITY OF NORTH SALT LAKE UTAH

REVISIONS
REV DATE BY COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE FEBRUARY 2015
DRAWING NAME C.303 PROFILE.dwg
DESIGNED/DRAWN BY AL
CHECKED APPROVED

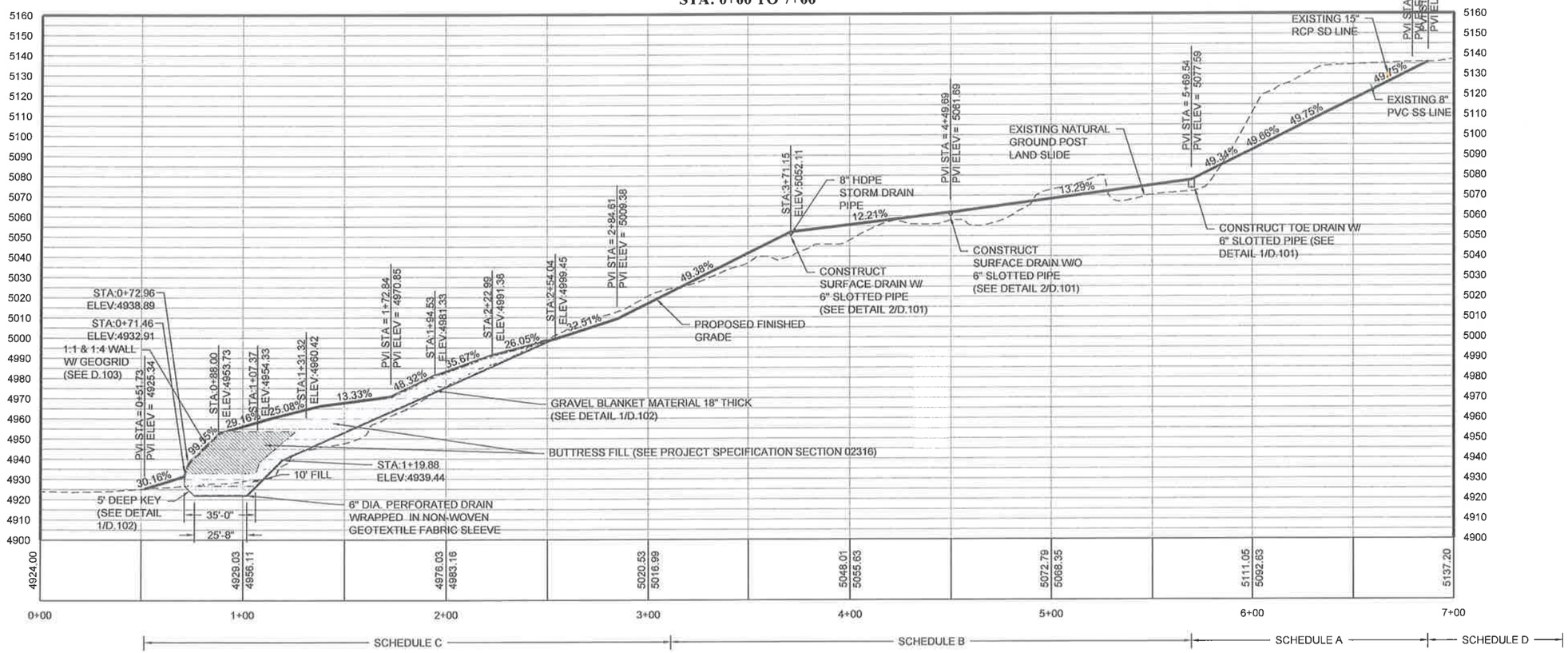
PROFILE WALL 1:1 (3)
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ. # GEO.021
C.303

Z:\PROJECTS (misc)\GEO 021 14 NSL LANDSLIDE TOPO\CADD\PLAN SET\PROFILES.dwg, 2/18/2015 1:41:41 PM, Arnie

PARKING LOT (1)

STA: 0+00 TO 7+00



PROFESSIONAL ENGINEER
2/18/15
No. 4939-03-2202
JAMES J. MELLIGAN
STATE OF UTAH

SCALE:
HOR: 1" = 30'
VER: 1" = 30'

CONSULTING ENGINEERS AND SURVEYORS

GILSON ENGINEERING INC

GeoStrata Engineering & Geosciences

CITY OF NORTH SALT LAKE

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE FEBRUARY 2015
DRAWING NAME C.304 PROFILE
DESIGNED/DRAWN BY AL
CHECKED
APPROVED

PROFILE PARKING LOT (1)

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: A

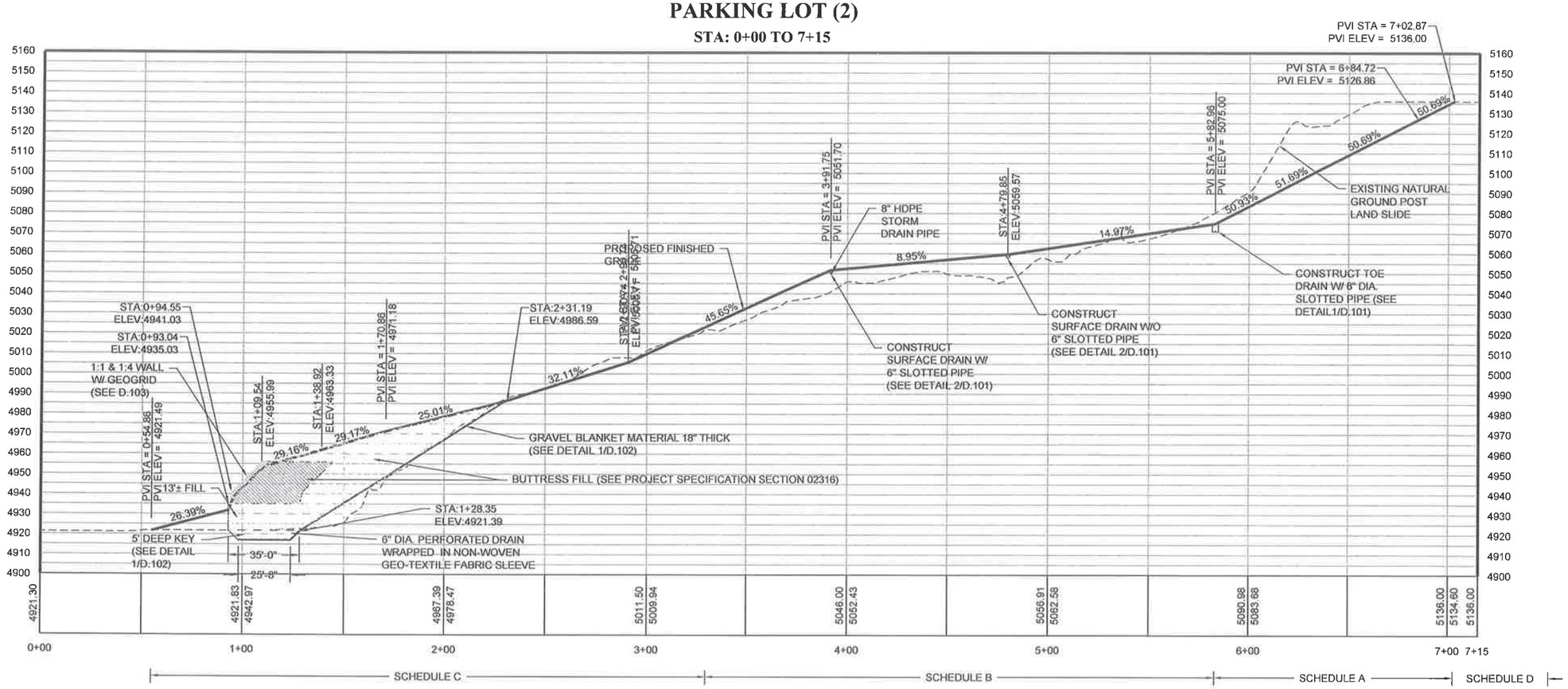
PROJ # GEO.021

C.304

Z:\PROJECTS (misc.)\GEO 021 14 NSL LANDSLIDE TOPO\CADD\PLAN SET\PROFILES.dwg, 2/19/2015 1:42:13 PM, Aimie

PARKING LOT (2)

STA: 0+00 TO 7+15



PROFESSIONAL ENGINEER
2/18/15
No. 4939103-2202
JAMES J. MILLIGAN
STATE OF UTAH

SCALE:
HOR: 1" = 30'
VER: 1" = 30'

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC.
13401 SOUTH 400 EAST
DRAPER, UT 84020
PHONE: (801) 571-4844
FAX: (801) 571-4847
1446 SOUTH 1700 WEST
WOODS CROSS, UT 84087
PHONE: (801) 773-7191
FAX: (801) 773-7190

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1426 S. Foothill Drive
Salt Lake City, UT 84108
801.585.0553
www.geostrata-llc.com

CITY OF NORTH SALT LAKE, UTAH

REV.	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST FOR ORIGINAL FORTHAL SIZE SHEETS

DATE FEBRUARY 2015
DRAWING NAME C.305 PROFILE
DESIGNED/DRAWN BY AL
CHECKED
APPROVED

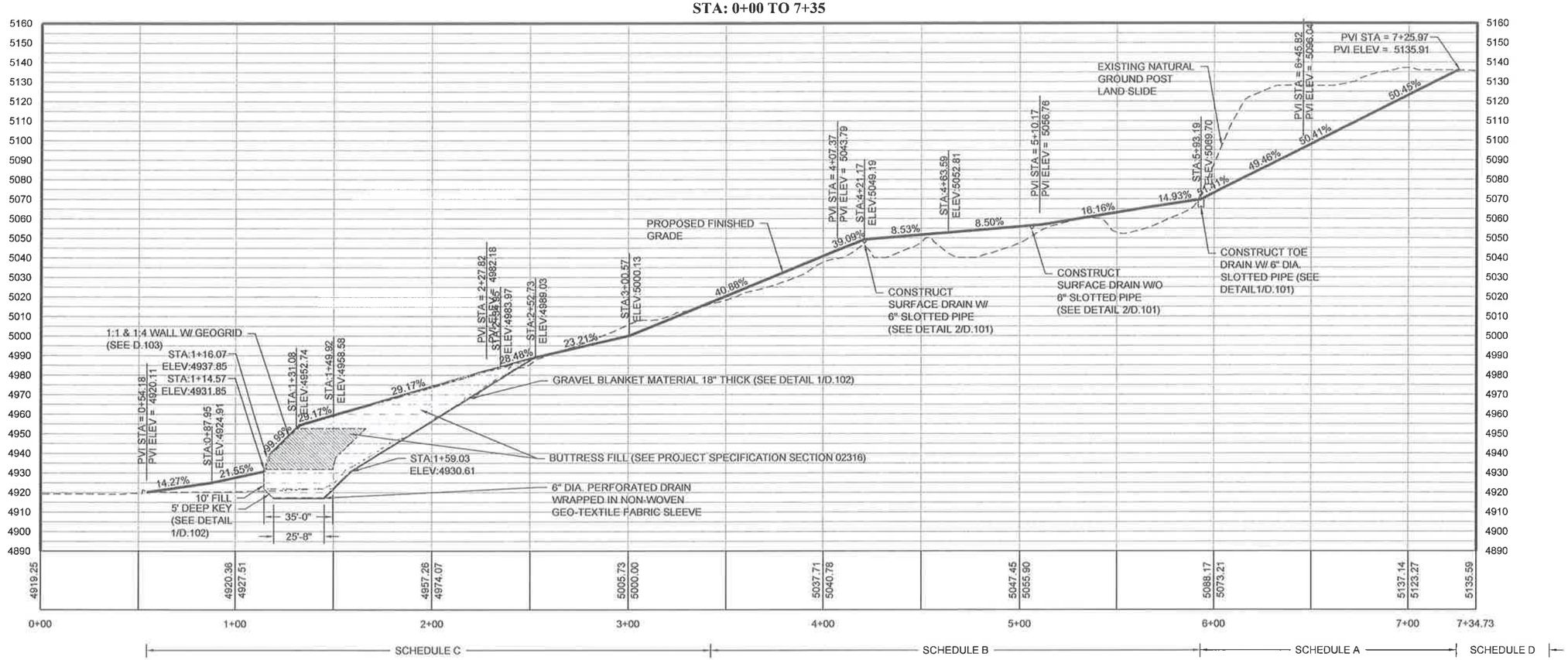
PROFILE PARKING LOT (2)
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ. # GEO.021
C.305

Z:\PROJECTS (misc.)\GEO 021 14 NSL LANDSLIDE TOPO\CADD\PLAN SET\PROFILES.dwg, 2/18/2015 1:43:19 PM, Aimie

PARKING LOT (3)

STA: 0+00 TO 7+35



PROFESSIONAL ENGINEER
2/18/15
No. 4939903-2202
JAMES J. MILLIGAN
STATE OF UTAH

SCALE:
HOR: 1" = 30'
VER: 1" = 30'

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC
1401 SOUTH 450 EAST
SPANISH FORK, UT 84660
PHONE: (801) 798-0555
FAX: (801) 798-0555
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SALT LAKE CITY, UT 84104
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FAX: (801) 972-1179
FAX: (801) 972-0080

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Engineering & Geosciences
10653 S. Center Point Pkwy
Suite 100
Sandy, UT 84092
801 561-5555
www.geostrata-llc.com

NORTH SALT LAKE CITY OF UTAH

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE FEBRUARY 2015
DRAWING NAME C.306 PROFILE
DESIGNED/DRAWN BY AL
CHECKED
APPROVED

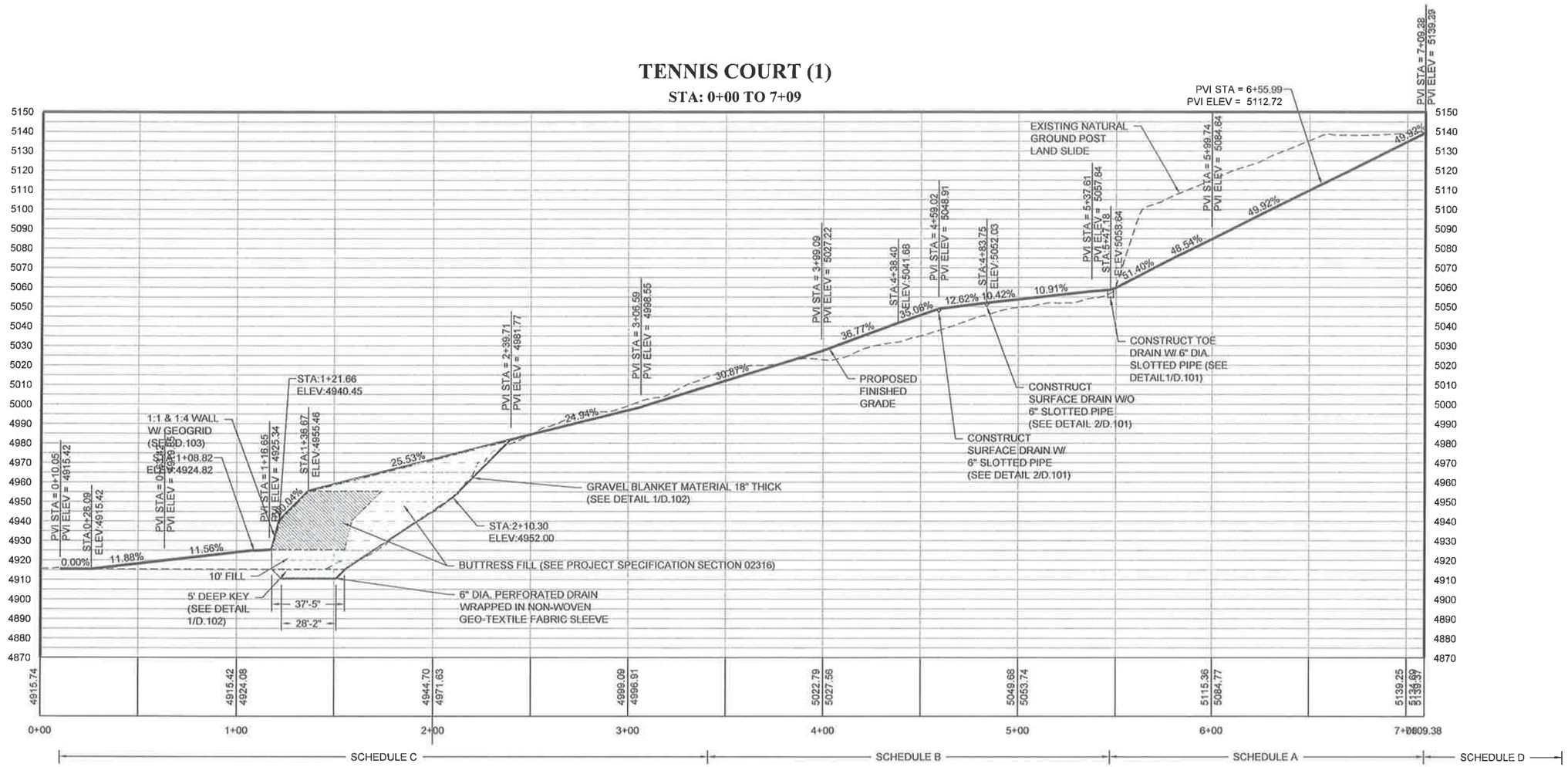
PROFILE PARKING LOT (3)
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ # GEO.021
C.306

Z:\PROJECTS (misc)\GEO 021 14 NSL LANDSLIDE TOPO\CADD\PLAN SET\PROFILES.dwg, 2/18/2015 1 43:50 PM, Aimie

TENNIS COURT (1)

STA: 0+00 TO 7+09



SCALE:
HOR: 1" = 30'
VER: 1" = 30'

PROFESSIONAL ENGINEER
2/18/15
No. 4939503-2202
JAMES J. MILLIGAN
STATE OF UTAH

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC.
12905 SOUTH 400 EAST
DRAPER, UT 84020
BUILDING C, UNIT 2
PHONE: (801) 571-7170
FAX: (801) 571-8404
3440 SOUTH 1700 WEST
RIVERDALE, UT. 84405
PHONE: (801) 731-1597
FAX: (801) 731-0291

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Bountiful, Utah 84010
801-824-0263
www.geostrata-ut.com

NORTH SALT LAKE CITY, UTAH

REVISIONS
REV | DATE | BY | COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: PROFILE
DESIGNED/DRAWN BY: AL
CHECKED | APPROVED

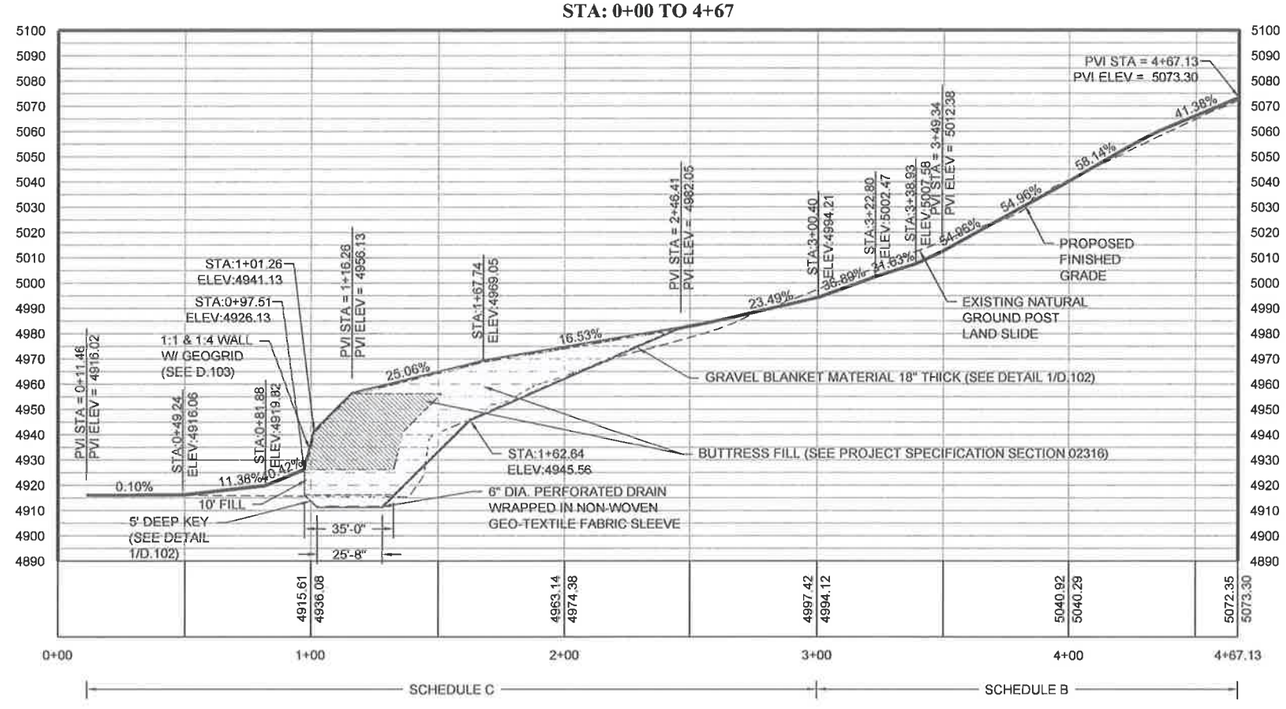
PROFILE TENNIS COURT (1)
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ. #: GEO.021
C.307

Z:\PROJECTS (misc.)\GEO 021 14 NSL LANDSLIDE TOPO\CADD\PLAN SET\PROFILES.dwg, 2/18/2015 1 44 20 PM, Aimie

TENNIS COURT (2)

STA: 0+00 TO 4+67



PROFESSIONAL ENGINEER
2/18/15
No. 4939903-2202
JAMES J. MILLIGAN
STATE OF UTAH

SCALE:
HOR: 1" = 30'
VER: 1" = 30'

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC
1290 SOUTH 400 EAST
SUITE 100
BOUNDS C. UNITS
PHONE: (801) 373-444
FAX: (801) 373-444
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WEST VALLEY CITY, UT
PHONE: (801) 73-151
FAX: (801)973-0000

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1400 S. Center Street (Rte)
Salt Lake City, UT 84115
801 810-0553
www.geostrata-llc.com

CITY OF NORTH SALT LAKE UTAH

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE FEBRUARY 2015
DRAWING NAME
E-308
DESIGNED:DRAWN BY:
AL
CHECKED
APPROVED

PROFILE TENNIS COURT (2)
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ. # GEO.021
C.308

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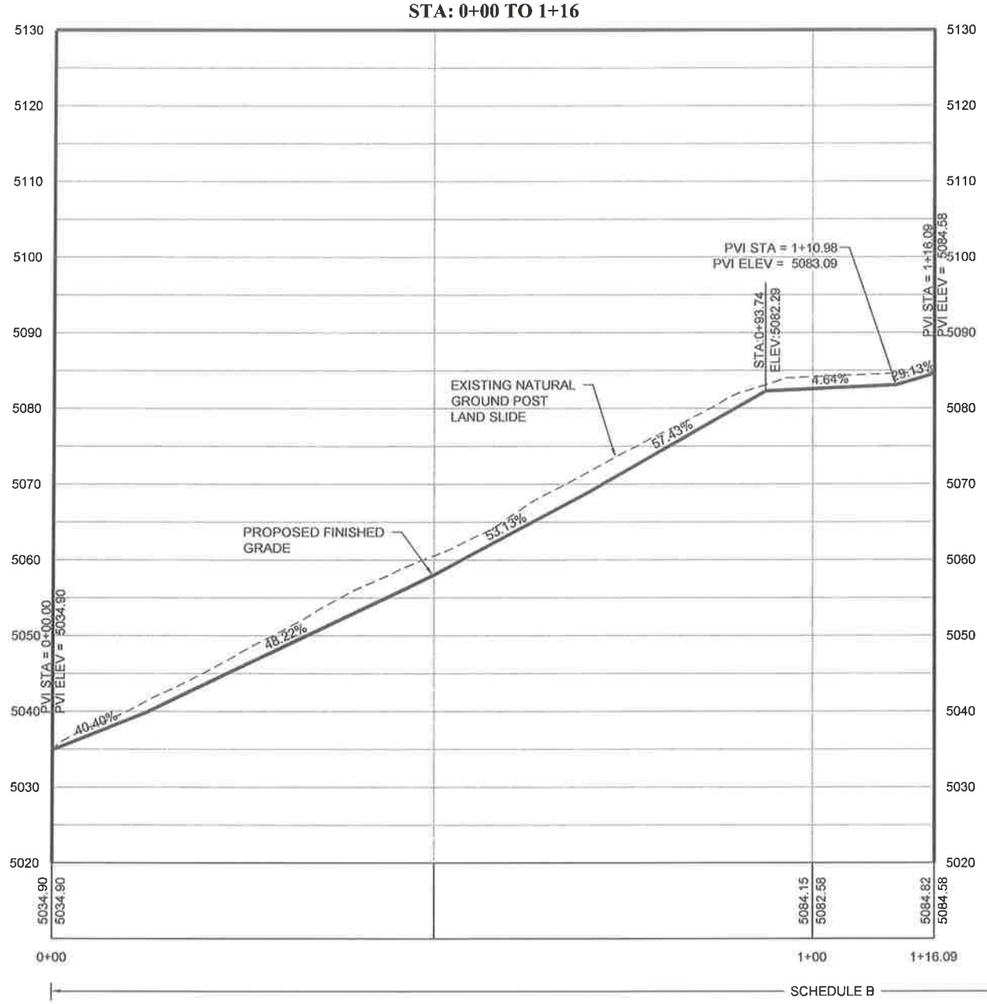
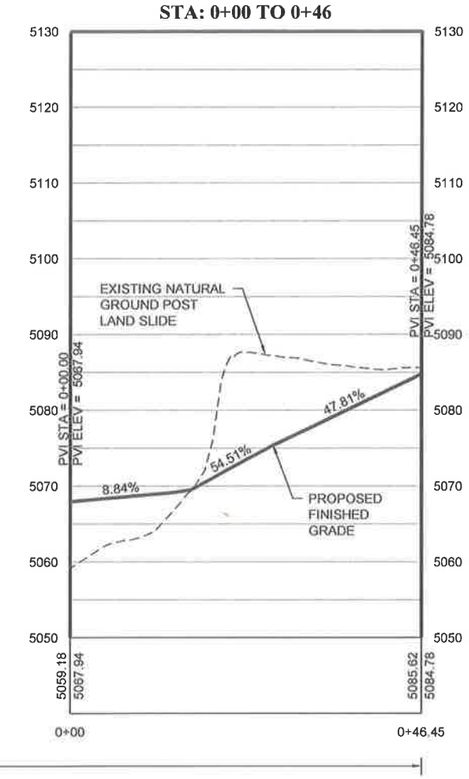
EVANS
STA: 0+00 TO 1+16



EVANS 2
STA: 0+00 TO 0+46



NOTE:
PROFILES SHOWN ARE FOR REFERENCE ONLY.
TIE IN POINTS FOR PROPOSED SURFACE TO
EXISTING SURFACE PER PLAN.

PROFESSIONAL ENGINEER
2/18/15
No. 4939903-2202
JAMES J. MILLIGAN
STATE OF UTAH

SCALE:
HOR: 1" = 10'
VER: 1" = 10'

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC
2401 SOUTH 450 EAST
OREM, UT 84058
PHONE: (801) 373-2414
FAX: (801) 373-0048
5640 SOUTH 1700 WEST
WEST HAVEN, UT 84401
PHONE: (801) 773-1773
FAX: (801) 773-0001

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Engineering & Geosciences
1465 N. Curson Avenue Ste
Tempe, AZ 85281
801.840.5553
www.geostrata-llc.com

NORTH SALT LAKE & UTAH CITY COUNTIES
I-15

REVISIONS
REV | DATE | REV COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: C.309 PROFILE
DESIGNED/DRAWN BY: AJL
CHECKED | APPROVED

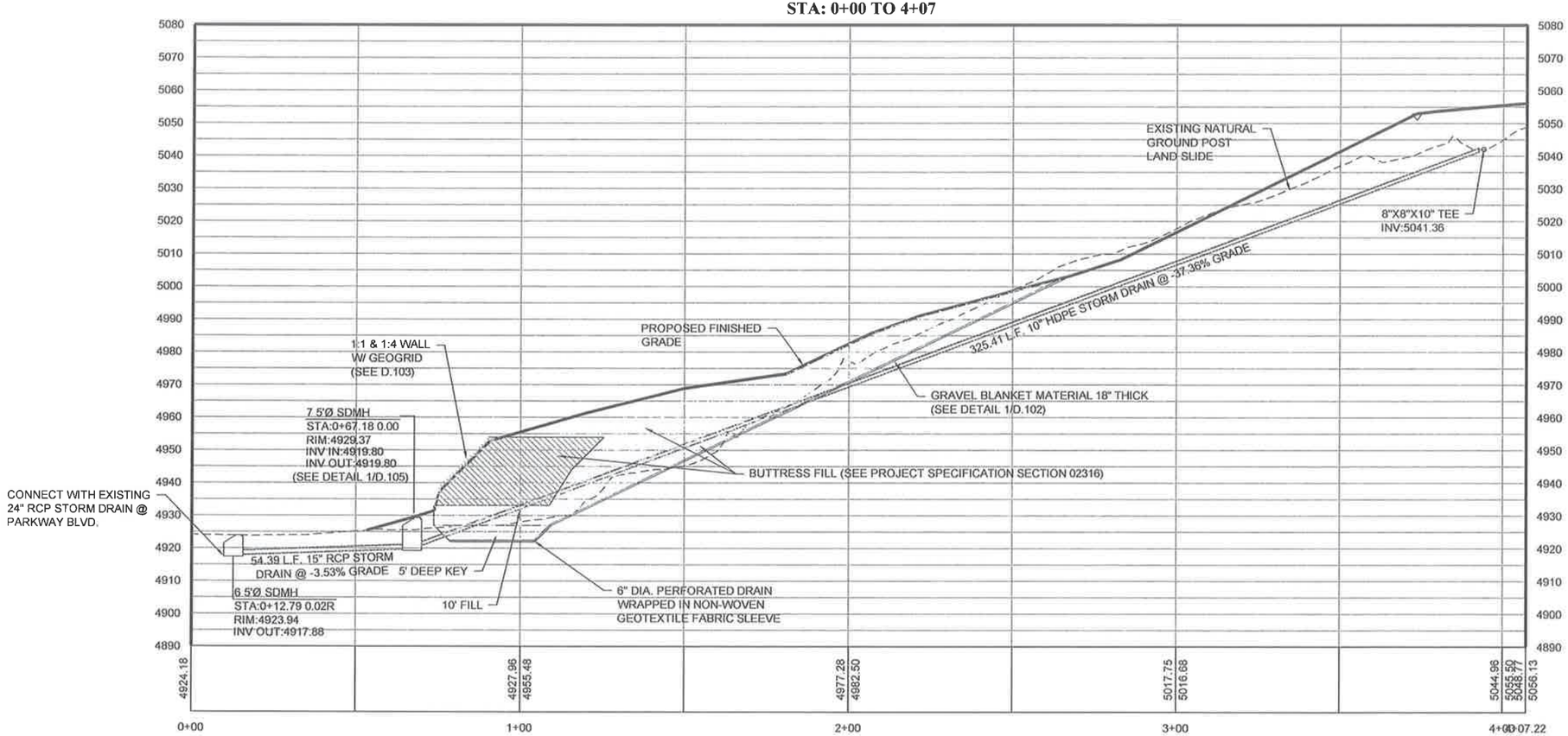
PROFILE EVANS PROPERTY
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ # GEO.021
C.309

Z:\PROJECTS (misc.)\GEO.021 14 NSL LANDSLIDE TOPO\CADD\PLAN SET\PROFILES.dwg, 2/18/2015 1:45:36 PM, Arnie

STORM DRAIN

STA: 0+00 TO 4+07



NOTES:

1. STORM DRAIN TO BE CONSTRUCTED WITH SCHEDULE B
2. SEE SHEET C.304 FOR ADDITIONAL SURFACE PROFILE DETAILS IN AREA OF STORM DRAIN.
3. IF SCHEDULE B IS CONSTRUCTED BEFORE SCHEDULE C CONSTRUCT STORM DRAIN PER PLAN WITH A MINIMUM OF 2-FT OF COVER OVER TOP OF STORM DRAIN PIPE

PROFESSIONAL ENGINEER
2/18/15
No. 4939503-2202
JAMES J. MILLICAN
STATE OF UTAH

SCALE:
HOR: 1" = 20'
VER: 1" = 20'

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING, INC.
12601 SOUTH 400 EAST
DRAPER, UT 84020
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PHONE: (801) 571-2444
FAX: (801) 571-9444
3442 SOUTH 1700 WEST
RIVERDALE, UT 84405
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FAX: (801)731-0201
GeoStrata
Engineering & Geosciences
1400 S. Orem Pkwy
Bldg. 2
Bountiful, Utah 84010
801-294-0053
www.geostrata-llc.com

CITY OF NORTH SALT LAKE, UTAH

REVISIONS

REV	DATE	BY	COMM'NTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF-SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: C.310 PROFILE
DESIGNED/DRAWN BY: AL
CHECKED
APPROVED

PROFILE STORM DRAIN

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

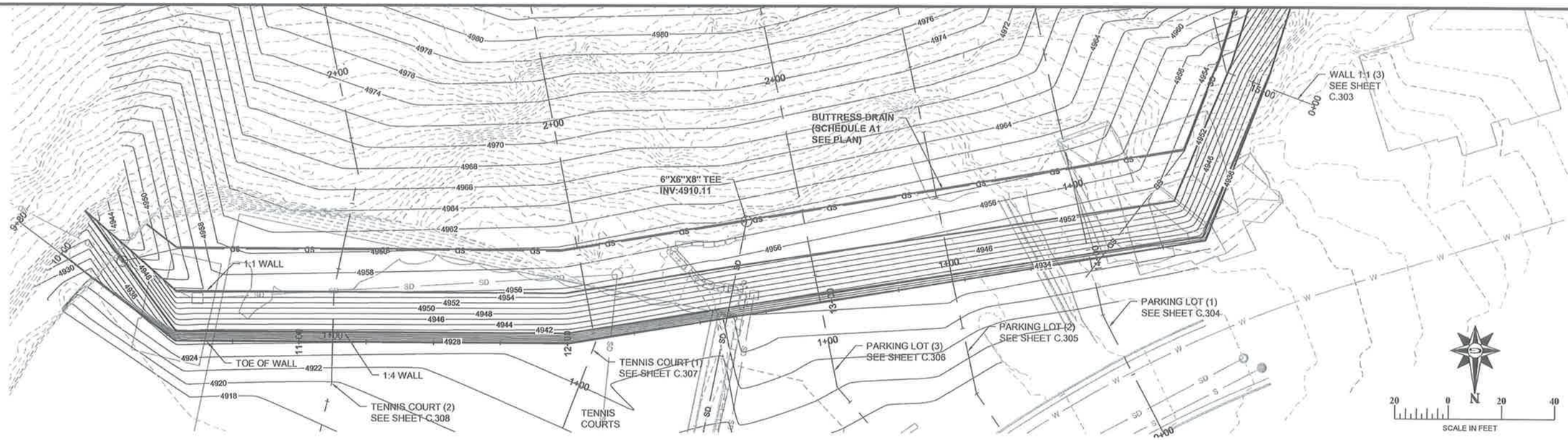
NORTH SALT LAKE, UTAH

REVISION: A

PROJ. # GEO.021

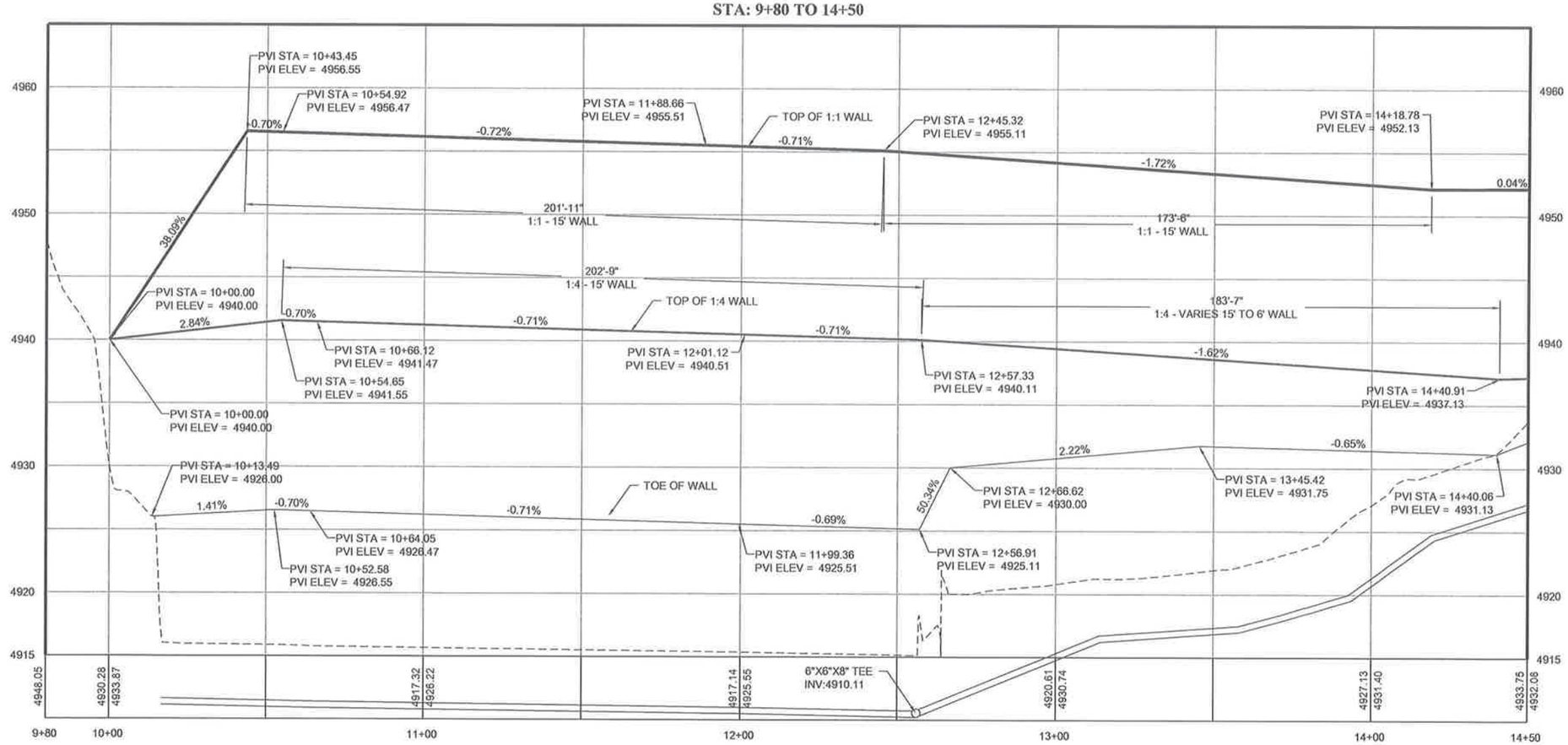
C.310

Z:\PROJECTS (misc)\GEO 021.14 NSL LANDSLIDE TOPO\CADD\PLAN SET\PROFILES.dwg, 2/18/2015 1:48:47 PM, Aimie



WALL 1

STA: 9+80 TO 14+50



SEE SHEET W.102

SCALE:
HOR: 1" = 20'
VER: 1" = 5'

PROFESSIONAL ENGINEER
2/18/15
No. 4939503-2202
JAMES J. MILLIGAN
STATE OF UTAH

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC.
12121 SOUTH 455 EAST
DRAPER, UT 84020
PHONE: (801) 571-7474
FAX: (801) 571-1846
348 SOUTH 1700 WEST
SALT LAKE CITY, UT 84104
PHONE: (801)973-1191
FAX: (801)973-0867

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Engineering & Geosciences
10483 S. Centennial Way
Sandy, UT 84070
801-619-9222
www.geostrata-ut.com

CITY OF NORTH SALT LAKE UTAH

REVISIONS
REV | DATE | BY | COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY ON HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: WALL WALL
DESIGNED/DRAWN BY: AL
CHECKED | APPROVED

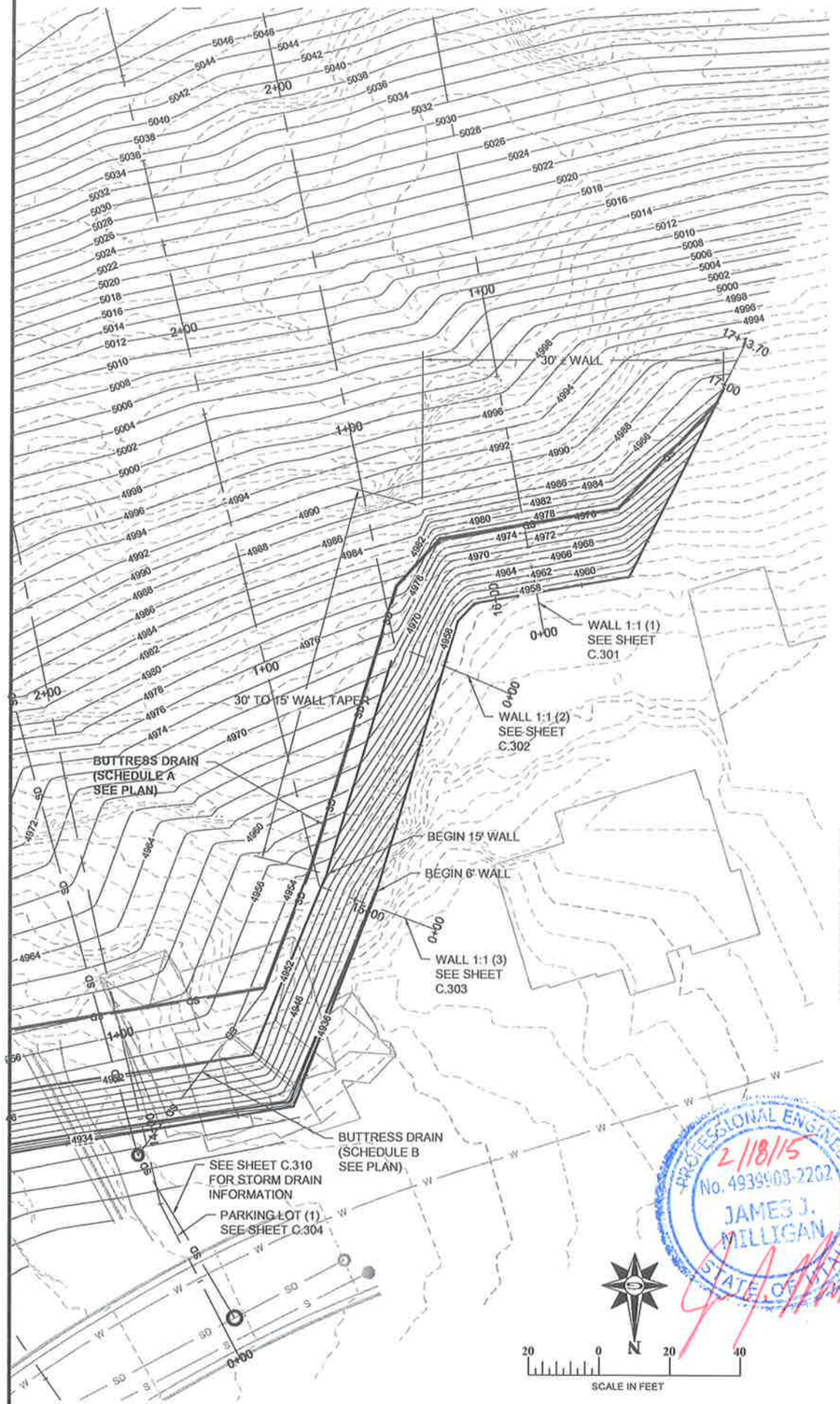
WALL PROFILE STA: 09+80 TO 14+50

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: A
PROJ. # GEO.021
W.101

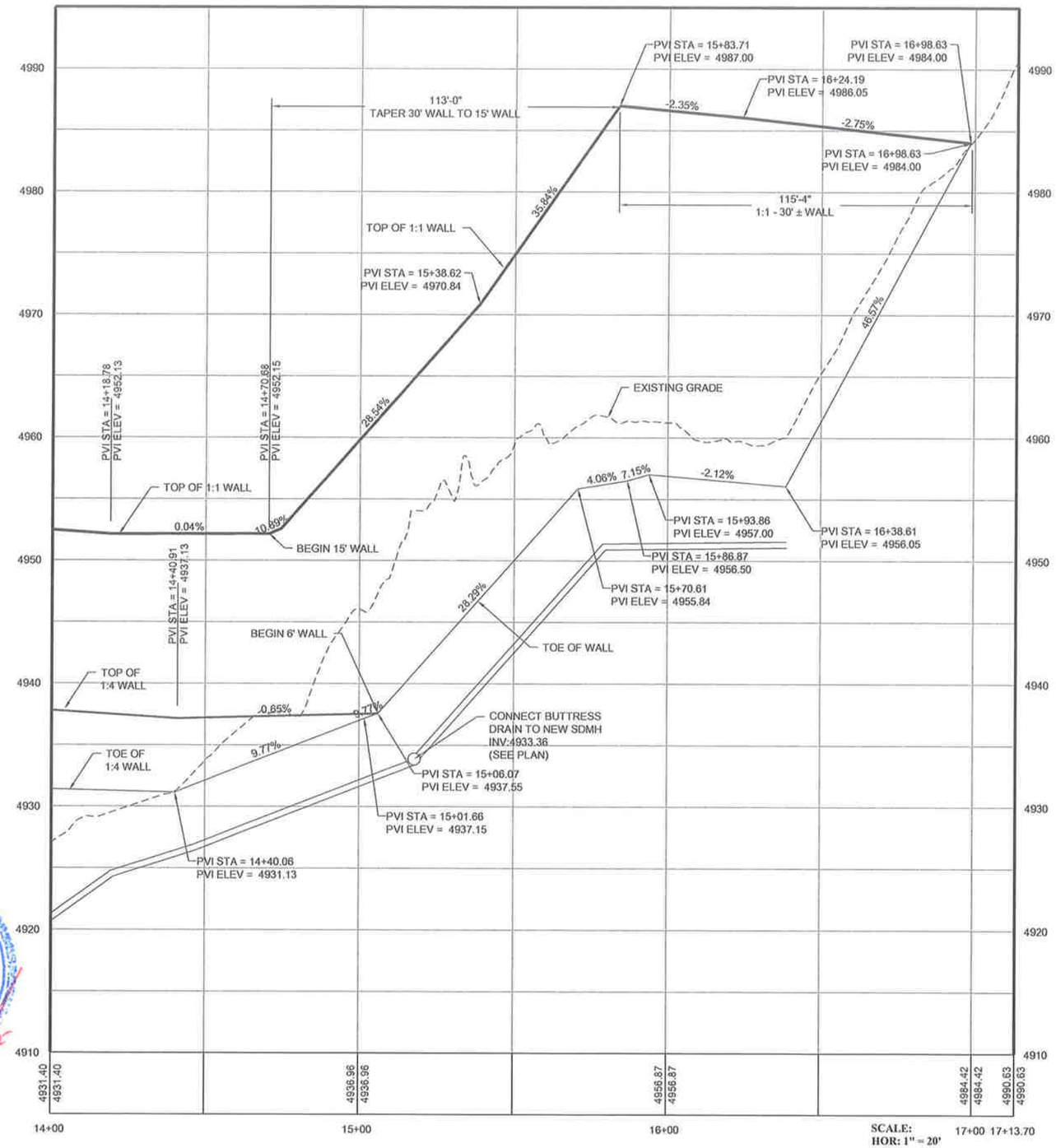
Z:\PROJECTS (misc.)\GEO 021.14 NSL LANDSLIDE TOPO\CADD\PLAN SET\WALL PROFILE.dwg, 2/18/2015 2:16:20 PM, Armie



SEE SHEET W.101

WALL 1

STA: 14+00 TO 17+14



PROFESSIONAL ENGINEER
2/18/15
No. 4939903-2202
JAMES J. MILLIGAN
STATE OF UTAH

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC
1344 SOUTH 400 EAST
SPANISH FORK, UTAH 84660
BUILDING C, UNIT 2
PHONE: (801) 798-0555
FAX: (801) 798-0556
548 SOUTH 1700 WEST
RIVERDALE, UT 84405
PHONE: (801) 399-1111
FAX: (801) 399-0000

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1472 S. Corporate Park Way
Stallings, Utah 84062
801-940-0452
www.geostrata.com

NORTH SALT LAKE CITY
SALT LAKE CITY

REVISIONS

REV	DATE	BY	COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: W.102 WALL
DESIGNED/DRAWN BY: AL
CHECKED
APPROVED

WALL PROFILE STA: 14+00 TO 17+14

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

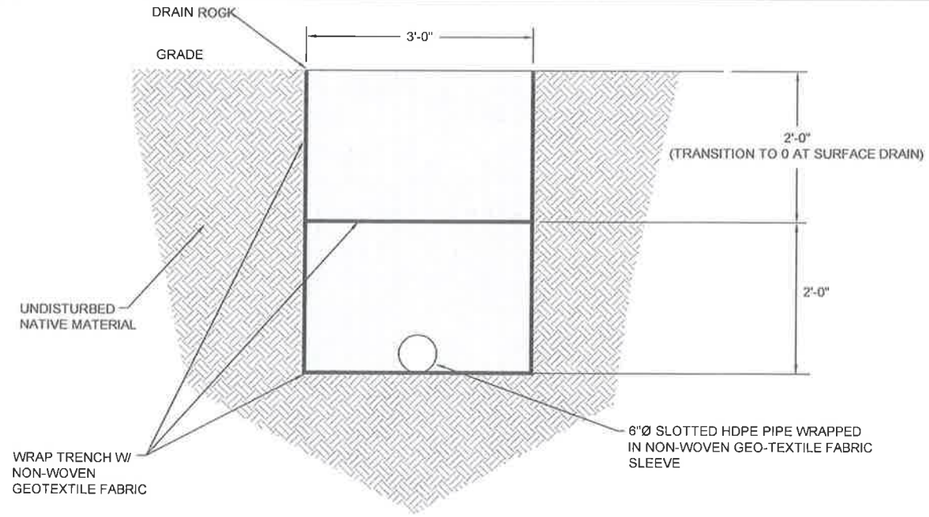
NORTH SALT LAKE, UTAH

REVISION: A

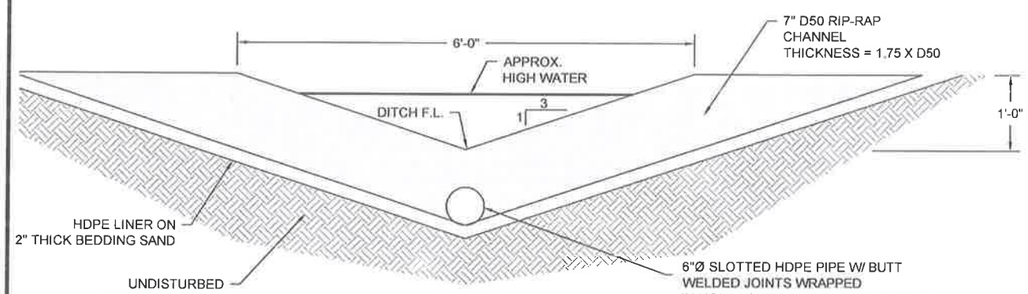
PROJ. # GEO.021

W.102

Z:\PROJECTS (misc.)\GEO 021 14 NSL LANDSLIDE TOPO\CADD\PLAN SET\WALL PROFILE.dwg, 2/18/2015 2:34:26 PM, Aime

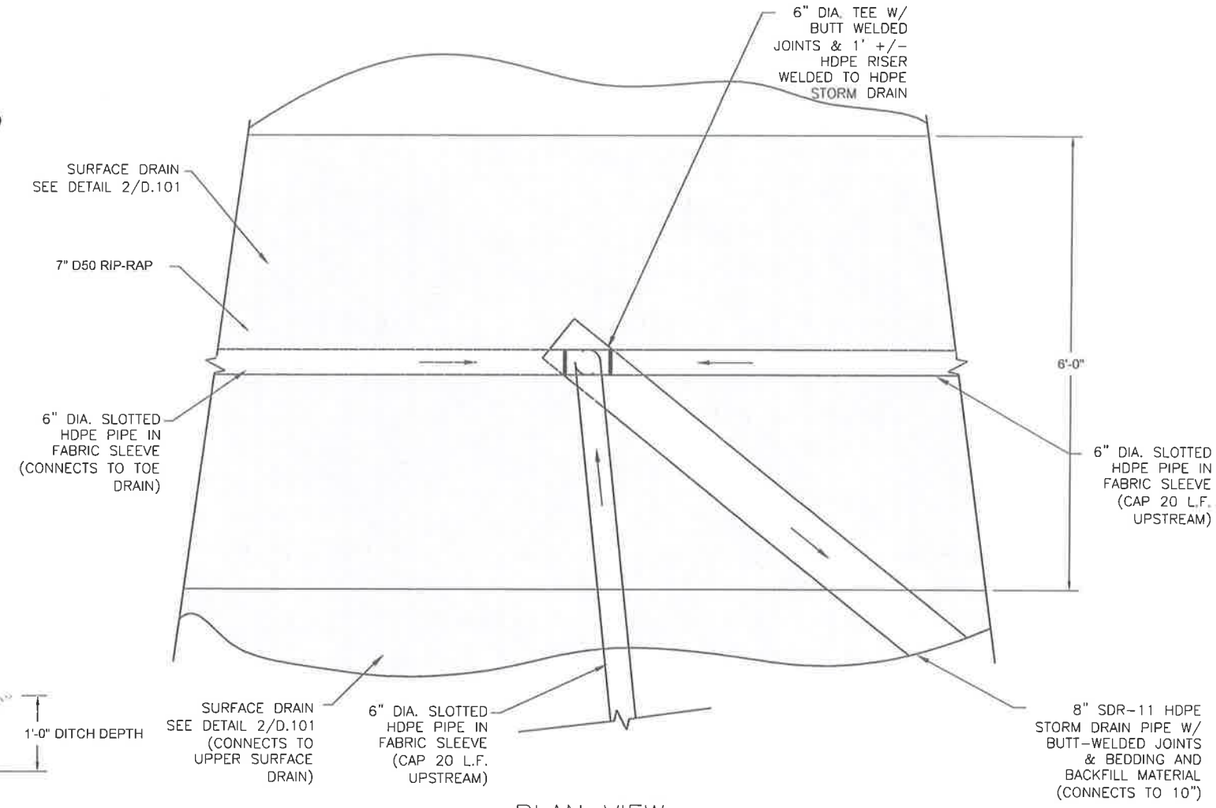


TOE DRAIN (1 / C.103)
SCALE: N.T.S.

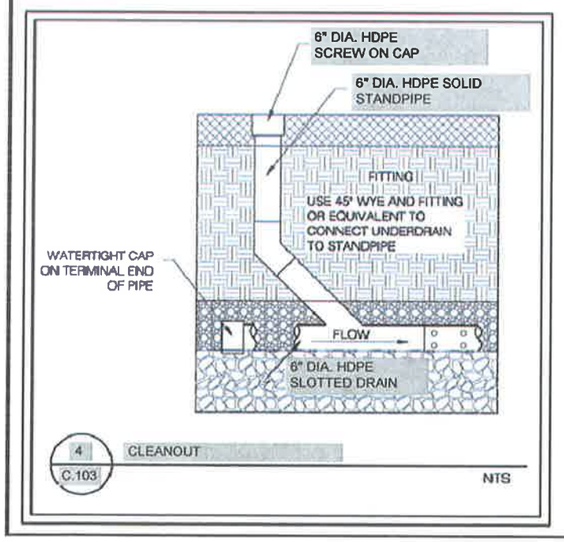


SURFACE DRAIN (2 / C.103)
SCALE: N.T.S.

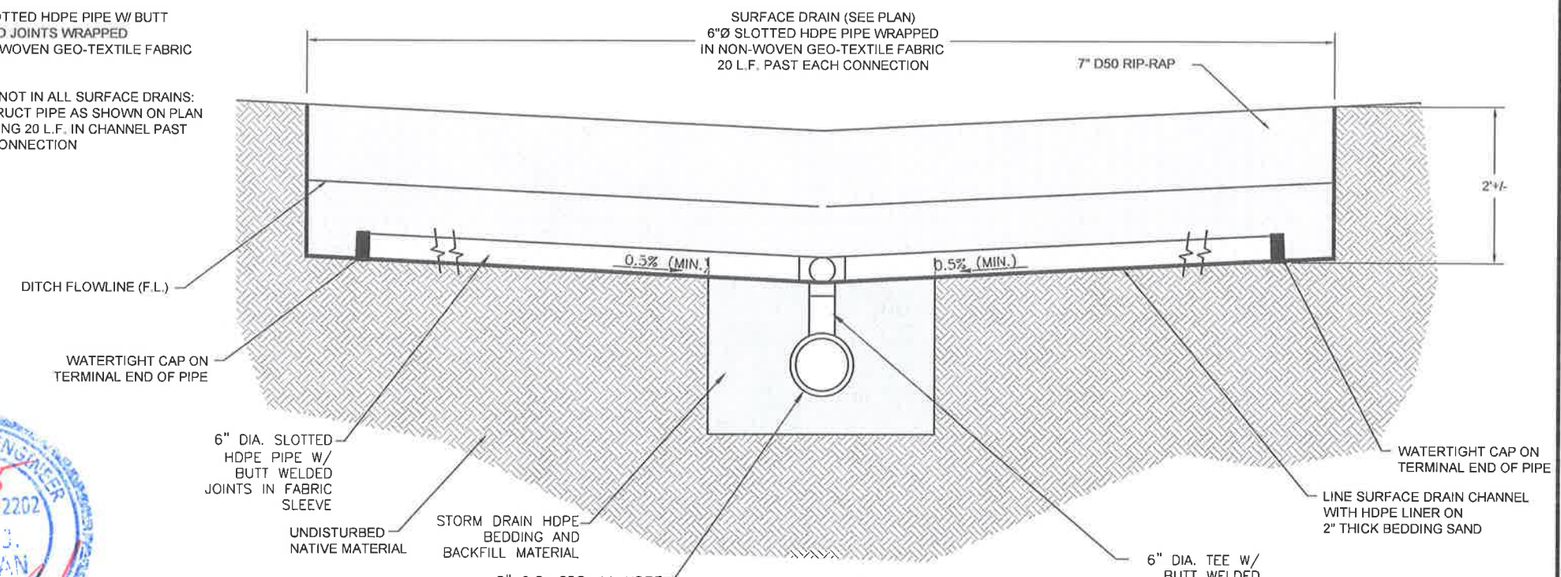
PIPE IS NOT IN ALL SURFACE DRAINS: CONSTRUCT PIPE AS SHOWN ON PLAN INCLUDING 20 L.F. IN CHANNEL PAST EACH CONNECTION



PLAN VIEW



4 / C.103 CLEANOUT
NTS



SECTION VIEW

SURFACE DRAIN TO STORM DRAIN CONNECTION (3 / C.103)
SCALE: N.T.S.

PROFESSIONAL ENGINEER
2/18/15
No. 4939503-2202
JAMES J. MILLIGAN
STATE OF UTAH

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC
1965 SOUTH 160 EAST SUITE 100 SALT LAKE CITY, UT 84115 PHONE: (801) 531-8484 FAX: (801) 531-8486
664 SOUTH 1100 WEST SUITE 100 SPANISH FORK, UT 84660 PHONE: (801) 373-1191 FAX: (801) 373-0066

GeoStrata Engineering & Geosciences
1400 E. Gen Thomas Way Bothwell, Utah 84663 801.361.0663 www.geostrata.com

NORTH SALT LAKE CITY

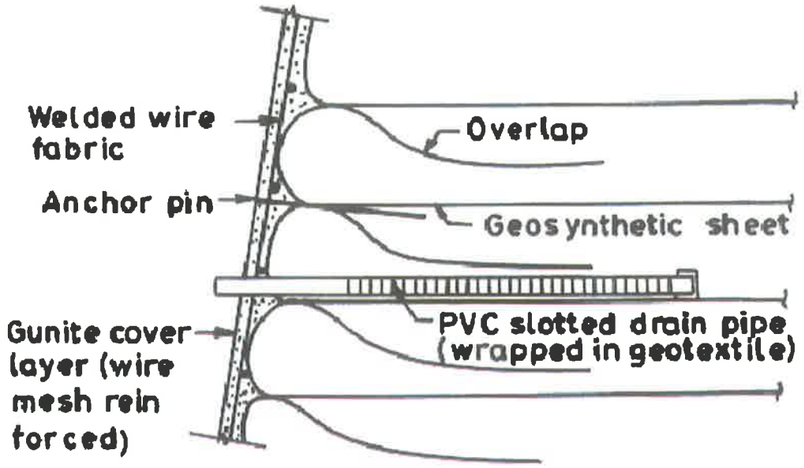
REV	DATE	BY	COMMENTS
			REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

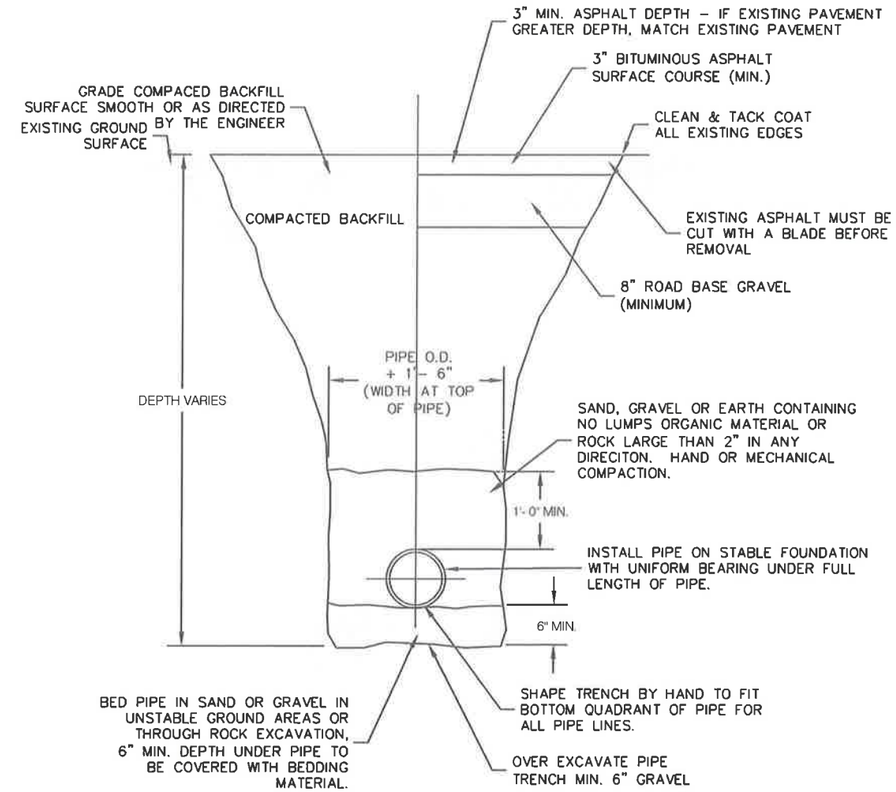
DATE FEBRUARY 2015
DRAWING NAME D.101-DETAILS-SHEET D.101
DESIGNED/DRAWN BY AL
CHECKED
APPROVED

DETAILS
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

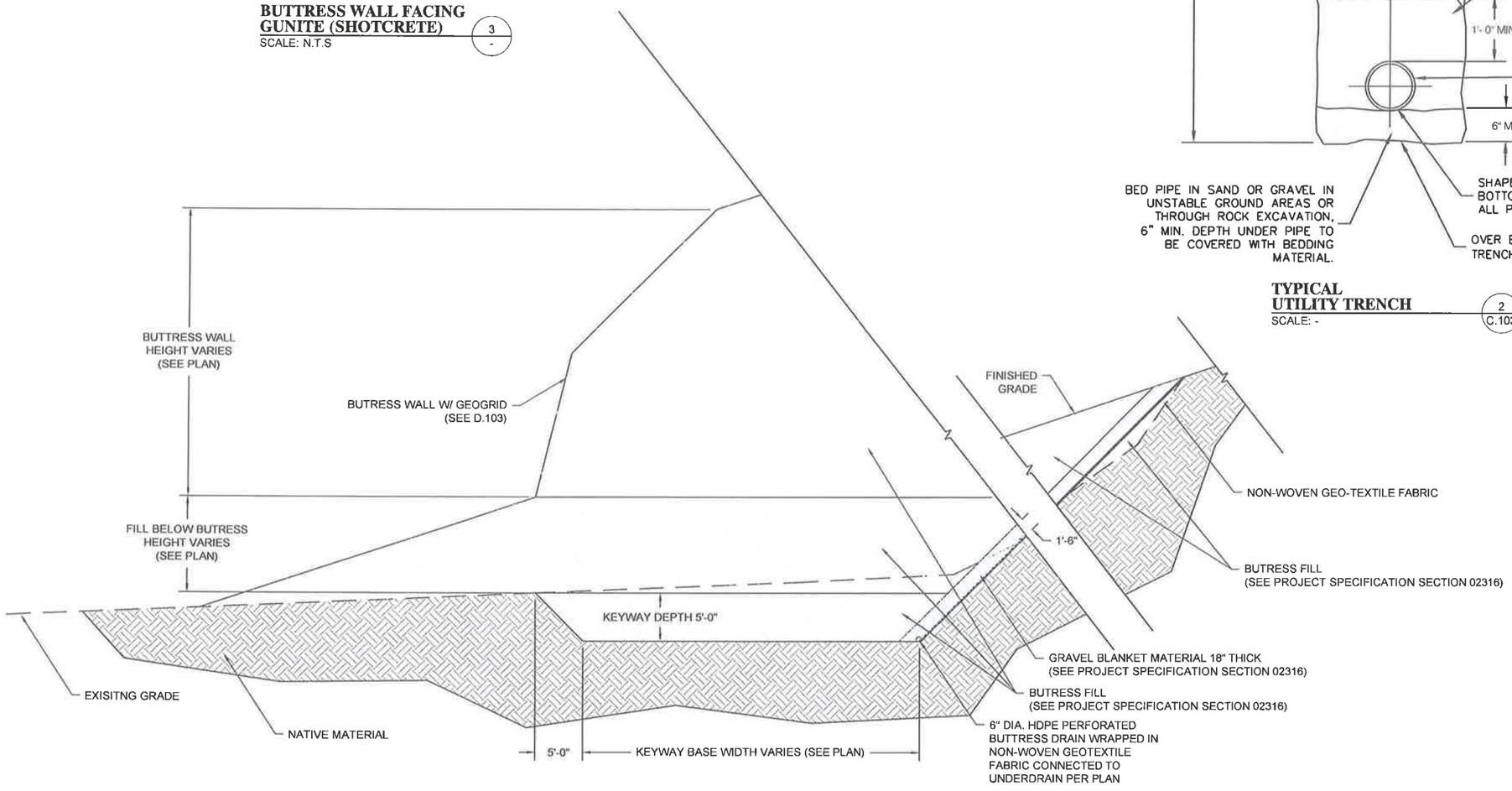
REVISION A
PROJ. # GEO.021
D.101



BUTTRESS WALL FACING GUNITE (SHOTCRETE) 3 / -
SCALE: N.T.S



TYPICAL UTILITY TRENCH 2 / C.103
SCALE: -



BUTTRESS KEYWAY & GRAVEL BLANKET DETAIL 1 / -
SCALE: N.T.S

PROFESSIONAL ENGINEER
2/18/15
No. 4939503-2202
JAMES J. MILLIGAN
STATE OF UTAH

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC
12425 SOUTH 450 EAST SUITE B-1 SOUTH JORDAN BUILDING C, UNIT 2 SOUTH JORDAN, UT 84095 PH: (801) 255-0529 FAX: (801) 255-4449
540 SOUTH 1700 WEST BRIGHAM CITY, UT 84302 PH: (435) 723-8159 FAX: (435) 723-8189

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1400 S. Lumber Exchange Building, Suite 1400 Ogden, UT 84201 (801) 394-0263 www.geostrata-llc.com

CITY OF NORTH SALT LAKE & SALT LAKE CITY

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDING TO HALF SIZE SHEETS

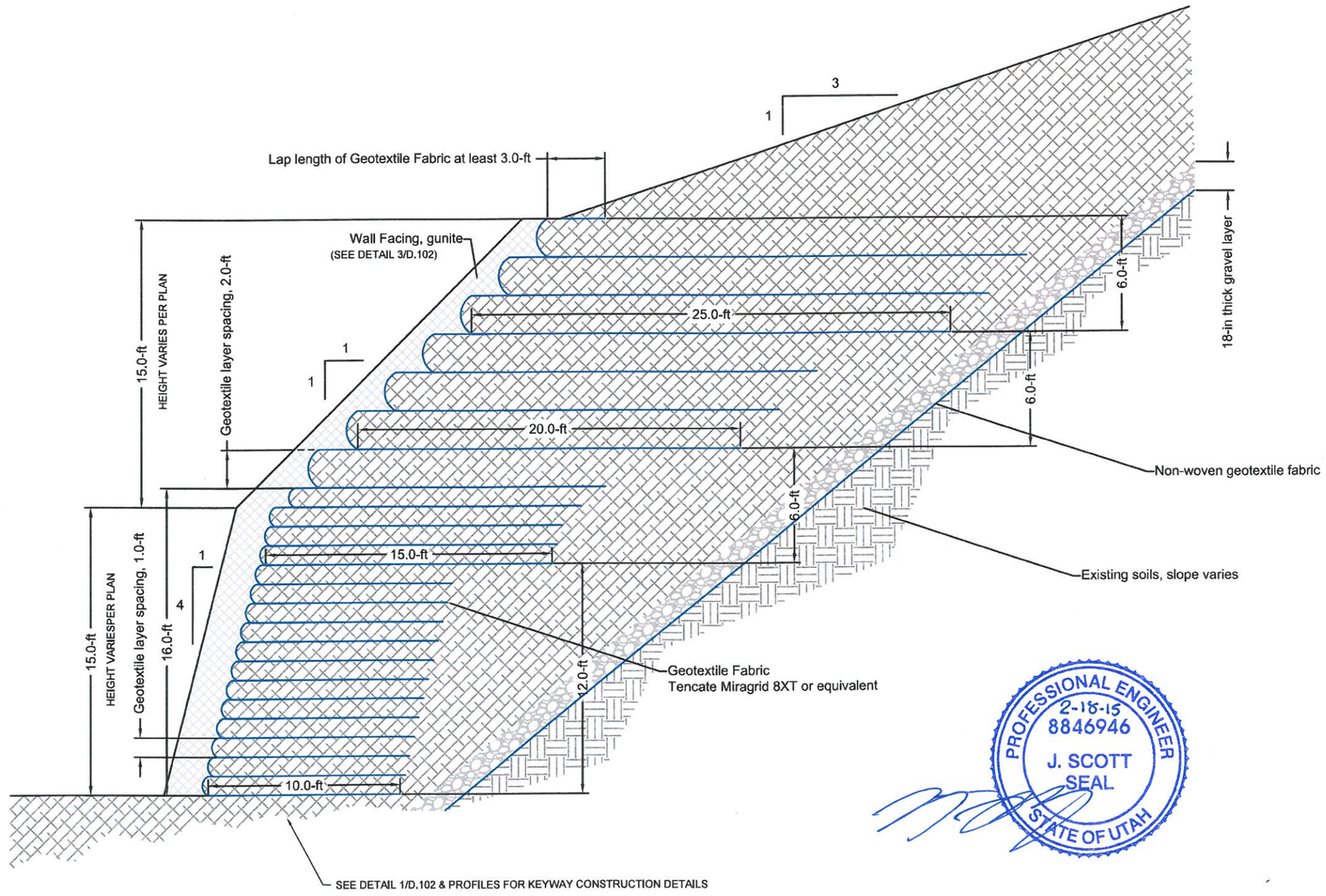
DATE FEBRUARY 2015
DRAWING NAME D.102 CAD PLANSET 2.1.10
DESIGNED/DRAWN BY AL
CHECKED
APPROVED

DETAILS

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: A
PROJ. # GEO.021
D.102



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SEAL
STATE OF UTAH

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North Salt Lake City
North Salt Lake Landslide
North Salt Lake, UT
Project Number: 920-004

BUTTRESS RETAINING WALL (1)
SCALE: N.T.S

Plate
1

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NORTH SALT LAKE CITY & HERITAGE

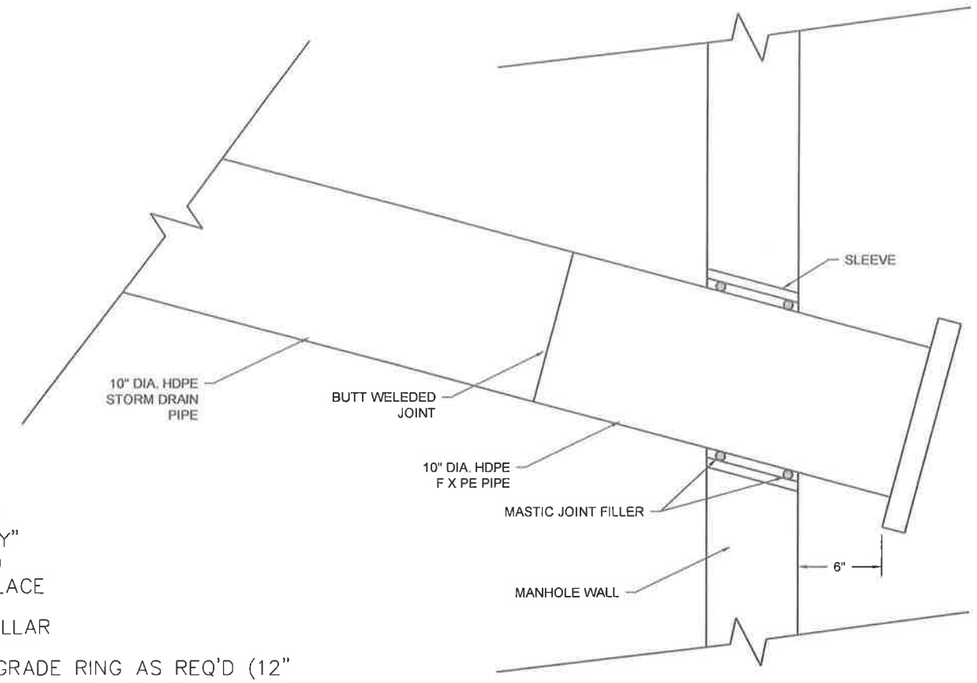
REVISIONS
REV | DATE | BY | COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

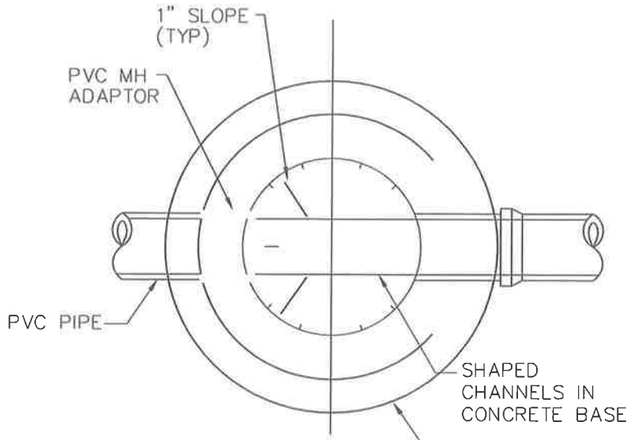
DATE: FEBRUARY 2015
DRAWING NAME: 21_1CAD PLANSET
DESIGNED/DRAWN BY: AL
CHECKED: | APPROVED:

DETAILS
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

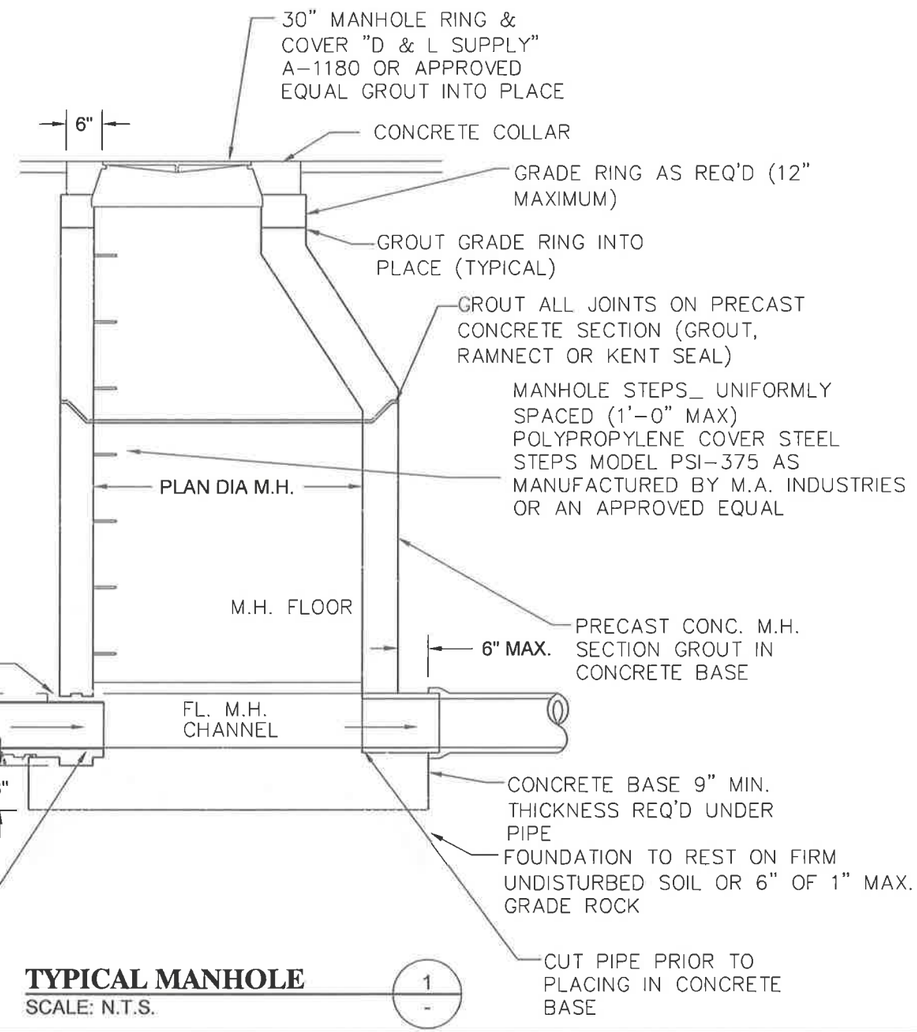
REVISION: A
PROJ. # GEO.021
D.103



HDPE PIPE TO MANHOLE CONNECTION DETAIL (2 / -)
SCALE: N.T.S



PLAN



TYPICAL MANHOLE (1 / -)
SCALE: N.T.S.

NOTE:
RUBBER BOOT JOINTS WITH STAINLESSSTEEL CONNECTION BAND IS ACCEPTABLE SUBSTITUTES FOR STANDARD JOINTS SHOWN

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CITY OF NORTH SALT LAKE UTAH

REV	DATE	BY	COMMENTS

REVISIONS

IF SCALE MEASURES 1" ON FULL SIZE SHEETS ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
DRAWING NAME: Z 1 - CAD PLANSET
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DETAILS
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A
PROJ. # GEO.021
D.104

LEGEND

- -BMP SILT FENCE ER.02
- -BMP INSPECTIOIN AND MAINTENANCE, BMP STABILIZED CONSTRUCTION ENTRANCE AND WASH AREA ER.01-ER.02
- -TOPSOIL STOCKPILE AREA (OR AS DIRECTED BY OWNER) BMP EARTH BERM BARRIER ER.01
- -BMP MATERIALS STORAGE, BMP VEHICLE AND EQUIPMENT FUELING, BMP CONCRETE WASTE MANAGEMENT, BMP PORTABLE TOILETS, BMP EARTH BERM BARRIER ER.01-ER.02
- -BMP DUST CONTROLS, BMP GRADING PRACTICES, BMP CONTAMINATED OR ERODIBLE SURFACE AREAS, REPOSITORY STOCKPILE AREA (OR AS DIRECTED BY OWNER), BMP EARTH BERM BARRIER ER.01-ER.02
- -BMP INLET PROTECTION

CONTRACTOR
AND APPROVED THE STORMWATER PROTECTION PLAN ITEMS CONTAINED HEREIN AND WILL COMPLY WITH IT'S PROVISIONS.

CONTRACTOR'S REPRESENTATIVE

NOTE: SIGNED COPIES OF THIS PLAN AND STATE NOI SHALL BE KEPT ON SITE AT ALL TIMES.

EROSION CONTROL NOTES

1. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DUE TO WIND AND RUNOFF. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING THE EROSION CONTROL FACILITIES SHOWN ON THE PLAN.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DRAINAGE AND EROSION CONTROL FACILITIES AS REQUIRED. STREETS SHALL BE KEPT CLEAN OF DEBRIS FROM TRAFFIC FROM THE SITE.

3. CONTRACTOR SHALL USE VEHICLE TRACKING CONTROL AT ALL LOCATIONS WHERE VEHICLES WILL ENTER OR EXIT THE SITE. CONTROL FACILITIES WILL BE MAINTAINED WHILE CONSTRUCTION IS IN PROGRESS, MOVED WHEN NECESSARY, AND REMOVED WHEN THE SITE IS PAVED.

4.STORM DRAIN INLET PROTECTION DEVICES SHALL BE INSTALLED IMMEDIATELY UPON INDIVIDUAL INLETS BECOMING FUNCTIONAL.

5. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER MANAGEMENT PLAN AND THE STATE OF UTAH DISCHARGE PERMIT SYSTEM. GENERAL PERMIT FOR "STORM DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY" AND BECOME FAMILIAR WITH THEIR CONTENT.

6. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, ETC.) SHALL BE DISPOSED IN A MANNER THAT PREVENTS CONTACT WITH STORM WATER DISCHARGES FROM THE SITE.

7. FUGITIVE DUST AREAS SHALL BE CONTROLLED BY SPRAYING WATER ON THE DRY AREAS OF THE SITE. CONTRACTOR SHALL SUPPLY THE CITY WITH A DUST CONTROL PLAN AT THE TIME OF THE PRE-CONTSTRUCTION MEETING.

8. NO RUBBISH, TRASH, GARBAGE OR OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

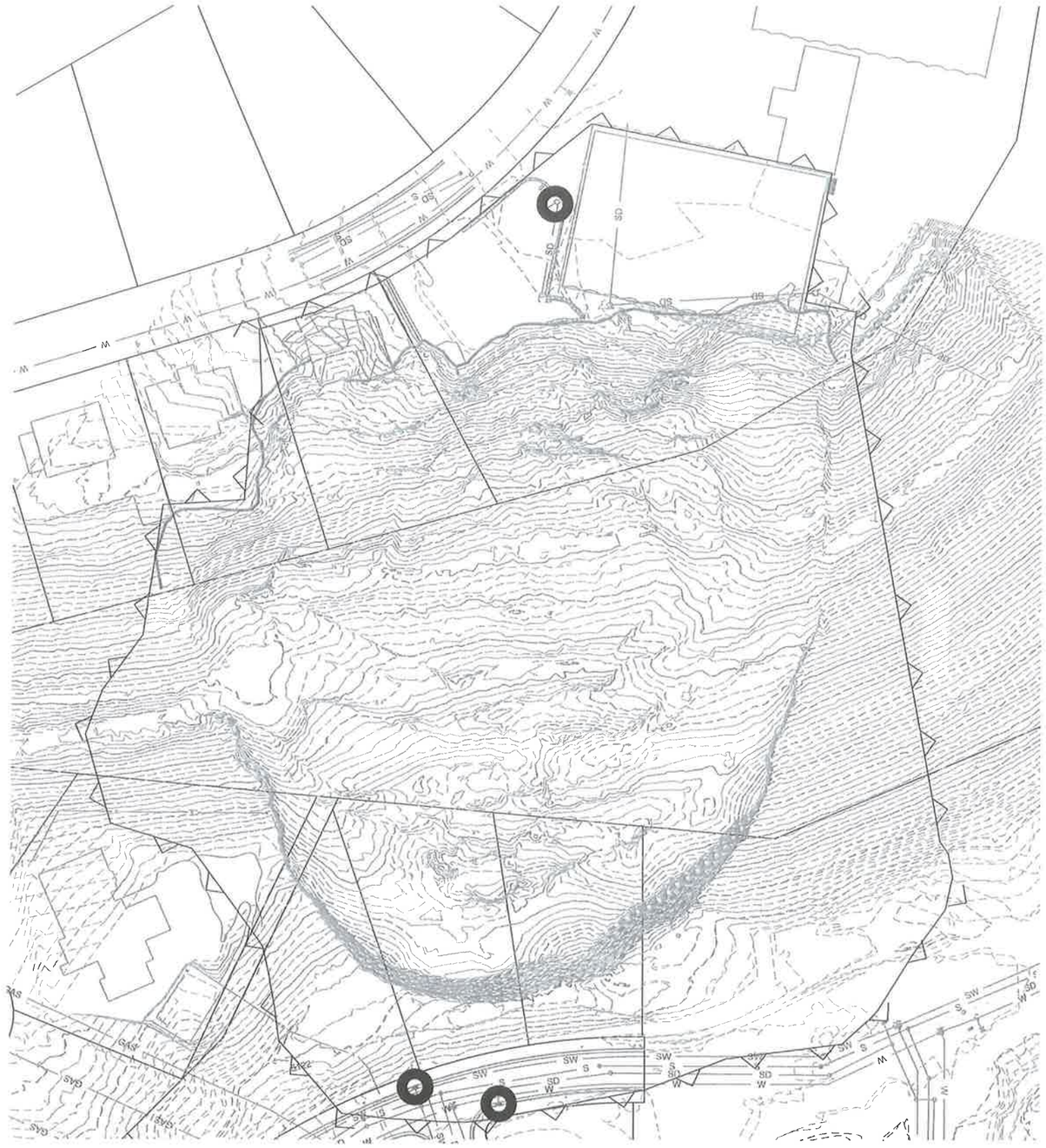
9. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) DUE TO GRADE CHANGES OR OTHER UNFORESEEN CONDITIONS DURING DEVELOPMENT OF THE PROJECT.

11. ALL INLETS SHALL HAVE TEMPORARY INLET CONTROL.

12. TEMPORARY SANITATION FACILITIES ARE REQUIRED.

13. CONTRACTOR SHALL COORDINATE WITH PUBLIC WORKS INSPECTOR ON ALL REQUESTS TO MODIFY OR MAKE CHANGES TO SWPPP/EROSION CONTROL PLAN.



NOTES

1 - ALL PROPOSED AND EXISTING INLETS ARE TO BE PROTECTED. SEE BMP INLET PROTECTION C.55, BMP CATCH BASIN CLEANING, BMP INSPECTION AND MAINTENANCE FOR INLET PROTECTION DETAILS.

2 - EXISTING GROUND COVER = 50% SEE BMP PRESERVATION OF EXISTING VEGETATION.

3 - SEQUENCE OF CONSTRUCTION

PHASE I

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
2. CONSTRUCT SILT FENCES ON THE SITE.
3. CONSTRUCT SEDIMENTATION PONDS WHERE NEEDED PER DISCRETION OF CONTRACTOR.
   SIZE TO BE DETERMINED BY ENGINEER.
4. HALT ALL ACTIVITIES AND CONTACT CIVIL ENGINEERING CONSULTANT TO PERFORM INSPECTION OF BMP'S. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH ENGINEER AND ALL GROUND DISTURBING CONTRACTORS BEFORE PRECEDING WITH CONSTRUCTION.
5. PREPARE TEMPORARY PARKING AND STORAGE AREAS.
6. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES. STORM DRAIN WATER DURING CONSTRUCTION WILL BE LOCATED IN RETENTION POND.
7. BEGIN GRADING THE SITE.

PHASE II

1. MAINTAIN SILT FENCE, INLET PROTECTION AND STABILIZED CONSTRUCTION EXITS INSTALLED DURING PHASE #1
2. COMPLETE PERMANENT DETENTION POND CONSTRUCTION.
3. BEGIN CONSTRUCTION OF UNDERGROUND UTILITIES.
4. INSTALL INLET PROTECTION AT NEW STORM DRAIN INLETS, AS INSTALLED.
8. INSTALL PERMANENT VEGETATION AND PLANT MATERIALS.
9. REMOVE ALL TEMPORARY EROSION & SEDIMENTATION CONTROL DEVICES (ONLY AFTER FINAL STABILIZATION HAS BEEN ACHIEVED).

4 - DETAILS AND BMP'S ON DRAWINGS C.54-C.56 ARE INCORPORATED INTO THIS PLAN BY REFERENCE.

LAND DISTURBANCE NOTES

1. CONTRACTOR SHOULD PERFORM EARTHWORK IN ACCORDANCE WITH THE NORTH SALT LAKE CITY LAND DISTURBANCE ORDINANCE, THE CITY'S STANDARD SPECIFICATIONS, NORTH SALT LAKE CITY LAND DISTURBANCE DESIGN AND CONSTRUCTION STANDARDS, EROSION, SEDIMENT, REVEGETATION REQUIREMENTS, AND THE DUST CONTROL PLANS REQUIRED BY THE STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF AIR QUALITY.

2. THE CONTRACTOR WILL PERFORM EARTHWORK IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS OUTLINED IN THE LAND DISTURBANCE DESIGN AND CONSTRUCTION STANDARDS AND THE RECOMMENDED EARTHWORK SPECIFICATIONS FOUND IN THE REPORT OF GEOTECHNICAL ENGINEER, AND THE GEOTECHNICAL INVESTIGATION LOCATED IN THE PROJECT TECHNICAL SPECIFICATION. IN THE EVENT THERE IS A CONFLICT BETWEEN THE DOCUMENTS MENTIONED HEREIN AND NORTH SALT LAKE CITY'S EROSION AND SEDIMENT CONTROL REQUIREMENTS OR THE DUST CONTROL PLAN AS REQUIRED BY THE STATE OF UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF AIR QUALITY, NORTH SALT LAKE CITY'S REQUIREMENTS AND THE STATE REQUIREMENTS WILL CONTROL.

3. THE SEQUENCE OF CONSTRUCTION IS TO BE FOLLOWED.

4. SEDIMENTATION BMPS SHOWN ON THE EROSION CONTROL AND SEDIMENT CONTROL PLANS TO BE INSTALLED WITHIN THE SAME WORKING DAY THE LAND DISTURBANCE OCCURS.

5. DUST CONTROL BMPS ARE TO BE ON SITE AND IMPLEMENTED AS SOON AS LAND DISTURBANCE OCCURS. THE DUST CONTROL AS REQUIRED BY THE STATE OF UTAH AIR QUALITY PLAN IS TO BE SUBMITTED WITH THE GRADING PLAN. THE DEVELOPER IS RESPONSIBLE FOR CONTROLLING THE DUST PRODUCTED AT HIS PROJECT AND SHALL PROVIDE THE NECESSARY MITIGATION TO KEEP THE DUST TO THE ACCEPTABLE LIMITS IDENTIFIED IN THE AIR QUALITY PERMIT OBTAINED FOR THE STATE OF UTAH, DEPARTMENT OF ENVIORONMENTAL QUALITY, AND DIVISION OF AIR QUALITY.

6. ALL AREAS TO BE REVEGETATED ARE TO RECEIVE REVEGETATION BMPS WITHIN 21 DAYS OF DISTURBANCE.

7. IF THE EXISTING GRADE IS DIFFERENT FROM WHAT IS SHOWN ON THIS GRADING PLAN, STOP WORK AND CONTACT THE TOWN OF VINEYARD, ENGINEERING DEPARTMENT. WORK IS TO REMAIN STOPPED UNTIL THE TOWN'S ENGINEERING DEPARTMENT PROVIDES A WRITTEN NOTICE TO RESUME WORK.

8. THE PROJECT OWNER IS RESPONSIBLE FOR MAINTAINING THE STREETS, STORM DRAINS, AND CHANNELS, DITCHES AND SWALES FREE FROM DEBRIS, SOIL, MUD, OR OTHER MATERIAL THAT WOULD CAUSE A PUBLIC SAFETY CONCERN, VIOLATE THE TOWN'S UPDES PERMIT, STATE OR FEDERAL LAWS, OR PREVENT THE FACILITY FROM OPERATING.

9. ALL CONCRETE TRUCKS ARE TO USE THE DESIGNATED WASHOUT AREA(S). FAILURE TO COMPLY WILL RESULT IN A WORK STOP AND THE OFFENDER COULD BE GUILTY OF A CLASS C MISDEMEANOR.

10. L.O.D. BARRIERS ARE TO BE IN PLACE AND MAINTAINED UNTIL WRITTEN NOTIFICATION IS RECEIVED FROM THE ENGINEERING DEPARTMENT. THE OWNER IS RESPONSIBLE FOR MAINTAINING L.O.D. BARRIERS.

11. IF DISTURBANCE OCCURS OUTSIDE THE L.O.D. WORK WILL STOP AND REMAIN STOPPED UNTIL THE WRITTEN RESPONSE IS RECEIVED FROM THE TOWN.

12. THE OWNER IS TO BE RESPONSIBLE FOR ADDITIONAL GRADING INFORMATION AS REQUIRED THROUGHOUT THE REMAINDER OF THE PROJECT.

13. SILT FENCES TO BE INSTALLED AT ALL DOWN GRADE SLOPES AND SHALL BE REQUIRED ON PHASE LINE FOR NON-CONCURRENT CONSTRUCTION.

14. ADDITIONAL CONSTRUCTION ENTRANCES SHALL BE REQUIRED ON PHASE LINE FOR NON-CONCURRENT CONSTRUCTION.

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N

60 0 60 120
SCALE IN FEET

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SALT LAKE CITY CORPORATION

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE FEBRUARY 2015
DRAWING NAME ER.101 SWPPP
DESIGNED/DRAWN BY AL
CHECKED
APPROVED

SWPPP

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

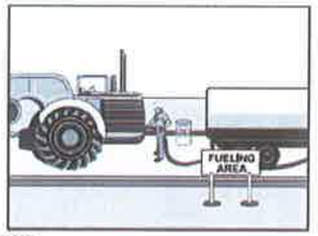
NORTH SALT LAKE, UTAH

REVISION: A

PROJ. # GEO.021

ER.101

BMP: VEHICLE AND EQUIPMENT FUELING



OBJECTIVES
- ■ HOUSEKEEPING PRACTICES
- □ CONTAIN WASTE
- □ MINIMIZE DISTURBED AREAS
- □ STABILIZE DISTURBED AREAS
- □ PROTECT SLOPE/CHANNELS
- □ CONTROL SITE PERIMETER
- □ CONTROL INTERNAL EROSION

DESCRIPTION:
PREVENT FUEL SPILLS AND LEAKS, AND REDUCE THEIR IMPACTS TO STORM WATER BY USING OFF-SITE FACILITIES, FUELING IN DESIGNATED AREAS ONLY, ENCLOSING OR COVERING STORED FUEL, IMPLEMENTING SPILL CONTROLS, AND TRAINING EMPLOYEES AND SUBCONTRACTORS.

INSTALLATION / APPLICATION:
- USE OFF-SITE FUELING STATIONS AS MUCH AS POSSIBLE. FUELING VEHICLES AND EQUIPMENT OUTDOORS OR IN AREAS WHERE FUEL MAY SPILL/LEAK ONTO PAVED SURFACES OR INTO DRAINAGE PATHWAYS CAN POLLUTE STORM WATER. IF YOU FUEL A LARGE NUMBER OF VEHICLES OR PIECES OF EQUIPMENT, CONSIDER USING AN OFF-SITE FUELING STATION. THESE BUSINESSES ARE BETTER EQUIPPED TO HANDLE FUEL SPILLS PROPERLY. PERFORMING THIS WORK OFF-SITE CAN ALSO BE ECONOMICAL BY ELIMINATING THE NEED FOR A SEPARATE FUELING AREA AT YOUR SITE.
- IF FUELING MUST OCCUR ON-SITE, USE DESIGNATED AREAS, LOCATED AWAY FROM DRAINAGE COURSES, TO PREVENT THE RUN-ON OF STORM WATER AND THE RUNOFF OF SPILLS. DISCOURAGE "TOPPING-OFF" OF FUEL TANKS.
- ALWAYS USE SECONDARY CONTAINMENT, SUCH AS A DRAIN PAN OR DROP CLOTH, WHEN FUELING TO CATCH SPILLS/LEAKS. PLACE A STOCKPILE OF SPILL CLEANUP MATERIALS WHERE IT WILL BE READILY ACCESSIBLE. USE ADSORBENT MATERIALS ON SMALL SPILLS RATHER THAN HOSING DOWN OR BURYING THE SPILL. REMOVE THE ADSORBENT MATERIALS PROMPTLY AND DISPOSE OF PROPERLY.
- CARRY OUT ALL FEDERAL AND STATE REQUIREMENTS REGARDING STATIONARY ABOVE GROUND STORAGE TANKS. (40 CF SUB. J) AVOID MOBILE FUELING OF MOBILE CONSTRUCTION EQUIPMENT AROUND THE SITE; RATHER, TRANSPORT THE EQUIPMENT TO DESIGNATED FUELING AREAS. WITH THE EXCEPTION OF TRACKED EQUIPMENT SUCH AS BULLDOZERS AND PERHAPS FORKLIFTS, MOST VEHICLES SHOULD BE ABLE TO TRAVEL TO A DESIGNATED AREA WITH LITTLE LOST TIME. TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER FUELING AND CLEANUP PROCEDURES.

TARGETED POLLUTANTS
- □ SEDIMENT
- □ NUTRIENTS
- ■ TOXIC MATERIALS
- ■ OIL & GREASE
- □ FLOATABLE MATERIALS
- □ OTHER WASTE

■ HIGH IMPACT
■ MEDIUM IMPACT
□ LOW OR UNKNOWN IMPACT

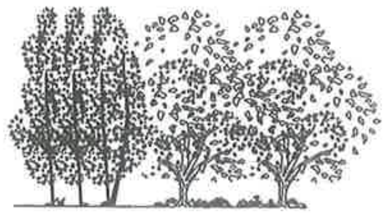
IMPLEMENTATION REQUIREMENTS
- ■ CAPITAL COSTS
- □ O&M COSTS
- ■ MAINTENANCE
- ■ TRAINING

■HIGH ■MEDIUM □LOW

LIMITATIONS:
- SENDING VEHICLES/EQUIPMENT OFF-SITE SHOULD BE DONE IN CONJUNCTION WITH STABILIZED CONSTRUCTION ENTRANCE.

MAINTENANCE:
- KEEP AMPLE SUPPLIES OF SPILL CLEANUP MATERIALS ON-SITE.
- INSPECT FUELING AREAS AND STORAGE TANKS ON A REGULAR SCHEDULE.

BMP: PRESERVATION OF EXISTING VEGETATION



OBJECTIVES
- □ HOUSEKEEPING PRACTICES
- □ CONTAIN WASTE
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- ■ STABILIZE DISTURBED AREAS
- ■ PROTECT SLOPE/CHANNELS
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- □ CONTROL INTERNAL EROSION

GENERAL DESCRIPTION:
CAREFULLY PLANNED PRESERVATION OF EXISTING VEGETATION MINIMIZES THE POTENTIAL OF REMOVING OR INJURING EXISTING TREES, VINES, SHRUBS, AND/OR GRASSES THAT SERVE AS EROSION CONTROLS.

APPLICATIONS:
THIS TECHNIQUE IS APPLICABLE TO ALL TYPES OF SITES. AREAS WHERE PRESERVING VEGETATION CAN BE PARTICULARLY BENEFICIAL ARE FLOODPLAINS, WETLANDS, STREAM BANKS, STEEP SLOPES, AND OTHER AREAS WHERE EROSION CONTROLS WOULD BE DIFFICULT TO ESTABLISH, INSTALL, OR MAINTAIN.

INSTALLATION / APPLICATION CRITERIA:
- CLEARLY MARK, FLAG OR FENCE VEGETATION OR AREAS WHERE VEGETATION SHOULD BE PRESERVED.
- PREPARE LANDSCAPING PLANS WHICH INCLUDE AS MUCH EXISTING VEGETATION AS POSSIBLE AND STATE PROPER CARE DURING AND AFTER CONSTRUCTION.
- DEFINE AND PROTECT WITH BERMS, FENCING, SIGNS, ETC. A SETBACK AREA FROM VEGETATION TO BE PRESERVED.
- PROPOSE LANDSCAPING PLANS WHICH DO NOT INCLUDE PLANT SPECIES THAT COMPETE WITH THE EXISTING VEGETATION.
- DO NOT LOCATE CONSTRUCTION TRAFFIC ROUTES, SPOIL PILES, ETC. WHERE SIGNIFICANT ADVERSE IMPACT ON EXISTING VEGETATION MAY OCCUR.

TARGETED POLLUTANTS
- ■ SEDIMENT
- □ NUTRIENTS
- □ TOXIC MATERIALS
- □ OIL & GREASE
- □ FLOATABLE MATERIALS
- □ OTHER WASTE

■ HIGH IMPACT
■ MEDIUM IMPACT
□ LOW OR UNKNOWN IMPACT

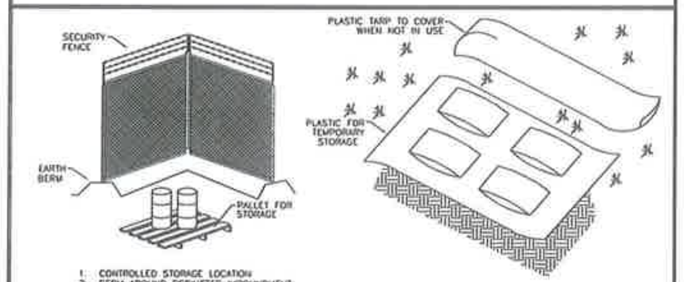
IMPLEMENTATION REQUIREMENTS
- ■ CAPITAL COSTS
- □ O&M COSTS
- □ MAINTENANCE
- □ TRAINING

■HIGH ■MEDIUM □LOW

LIMITATIONS:
- REQUIRES FORWARD PLANNING BY THE OWNER/DEVELOPER, CONTRACTOR AND DESIGN STAFF.
- FOR SITES WITH DIVERSE TOPOGRAPHY, IT IS OFTEN DIFFICULT AND EXPENSIVE TO SAVE EXISTING TREES WHILE GRADING THE SITE SATISFACTORILY FOR THE PLANNED DEVELOPMENT.
- MAY NOT BE COST EFFECTIVE WITH HIGH LAND COSTS.

MAINTENANCE:
- INSPECTION AND MAINTENANCE REQUIREMENTS FOR PROTECTION OF VEGETATION ARE LOW.
- MAINTENANCE OF NATIVE TREES OR VEGETATION SHOULD CONFORM TO LANDSCAPE PLAN SPECIFICATIONS.

BMP: MATERIALS STORAGE



1. CONTROLLED STORAGE LOCATION
2. BERM AROUND PERIMETER IMPOUNDMENT
3. STORAGE OFF GROUND
4. COVER WHEN NOT IN USE

DESCRIPTION:
CONTROLLED STORAGE OF ON-SITE MATERIALS.

OBJECTIVES
- ■ HOUSEKEEPING PRACTICES
- ■ CONTAIN WASTE
- □ MINIMIZE DISTURBED AREAS
- □ STABILIZE DISTURBED AREAS
- □ PROTECT SLOPES/CHANNELS
- □ CONTROL SITE PERIMETER
- □ CONTROL INTERNAL EROSION

APPLICATION:
- STORAGE OF HAZARDOUS, TOXIC, AND ALL OTHER CHEMICAL SUBSTANCES.
- ANY CONSTRUCTION SITE WITH OUTSIDE STORAGE OF MATERIALS.

INSTALLATION/APPLICATION CRITERIA:
- DESIGNATE A SECURED AREA WITH LIMITED ACCESS AS THE STORAGE LOCATION. ENSURE NO WATERWAYS OR DRAINAGE PATHS ARE NEARBY.
- CONSTRUCT COMPACTED EARTHEN BERM (SEE EARTH BERM BARRIER INFORMATION SHEET OR SIMILAR PERIMETER CONTAINMENT AROUND STORAGE LOCATION FOR IMPOUNDMENT IN THE CASE OF SPILLS.
- ENSURE ALL ON-SITE PERSONNEL UTILIZE DESIGNATED STORAGE AREA. DO NOT STORE EXCESSIVE AMOUNTS OF MATERIAL THAT WILL NOT BE UTILIZED ON SITE.
- FOR ACTIVE USE OF MATERIALS AWAY FROM THE STORAGE AREA ENSURE MATERIALS ARE NOT SET DIRECTLY ON THE GROUND AND ARE COVERED WHEN NOT IN USE. PROTECT STORM DRAINAGE DURING USE.

TARGETED POLLUTANTS
- □ SEDIMENT
- □ NUTRIENTS
- ■ TOXIC MATERIALS
- □ OIL & GREASE
- □ FLOATABLE MATERIALS
- ■ OTHER WASTE

■ HIGH IMPACT
■ MEDIUM IMPACT
□ LOW OR UNKNOWN IMPACT

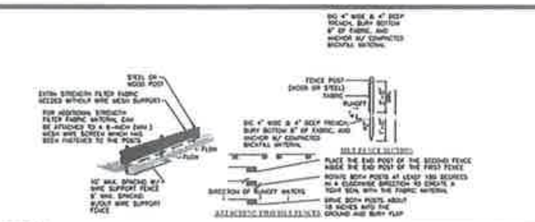
LIMITATIONS:
- DOES NOT PREVENT CONTAMINATION DUE TO MISHANDLING OF PRODUCTS.
- SPILL PREVENTION AND RESPONSE PLAN STILL REQUIRED.
- ONLY EFFECTIVE IF MATERIALS ARE ACTIVELY STORED IN CONTROLLED LOCATION.

IMPLEMENTATION REQUIRED
- ■ CAPITAL COSTS
- ■ O&M COSTS
- ■ MAINTENANCE
- ■ TRAINING

■HIGH ■MEDIUM □LOW

MAINTENANCE:
- INSPECT DAILY AND REPAIR ANY DAMAGE TO PERIMETER IMPOUNDMENT OR SECURITY FENCING.
- VERIFY THAT ALL MATERIALS ARE BEING CORRECTLY STORED (I.E. STANDING UPRIGHT, IN LABELED CONTAINERS, TIGHTLY CAPPED) AND THAT NO MATERIALS ARE BEING STORED AWAY FROM THE DESIGNATED LOCATION.

BMP: SILT FENCE



DESCRIPTION:
A TEMPORARY SEDIMENT BARRIER CONSISTING OF ENTRENCHED FILTER FABRIC STRETCHED ACROSS AND SECURED TO SUPPORTING POSTS.

APPLICATIONS
- □ HOUSEKEEPING PRACTICES
- □ CONTAIN WASTE
- □ MINIMIZE DISTURBED AREAS
- □ STABILIZE DISTURBED AREAS
- ■ PROTECT SLOPES/CHANNELS
- ■ CONTROL SITE PERIMETER
- ■ CONTROL INTERNAL EROSION

APPLICATION:
- PERIMETER CONTOL: PLACE BARRIER AT DOWNGRADIENT LIMITS OF DISTURBANCE
- SEDIMENT BARRIER: PLACE BARRIER AT TOE OF SLOPE OR SOIL STOCKPILE
- PROTECTION OF EXISTING WATERWAYS: PLACE BARRIER NEAR TOP OF STREAM BANK
- INLET PROTECTION: PLACE FENCE SURROUNDING CATCHBASINS

INSTALLATION / APPLICATION CRITERIA:
- PLACE POSTS 6 FEET APART ON CENTER ALONG CONTOUR (OR USE PREASSEMBLED UNIT) AND DRIVE 1 FOOT MINIMUM INTO GROUND. EXCAVATE AN ANCHOR TRENCH IMMEDIATELY UPGRADIENT OF POSTS.
- SECURE WIRE MESH (14 GAGE MIN. WITH 6 INCH OPENINGS) TO UPSLOPE SIDE OF POSTS. ATTACH WITH HEAVY DUTY 1 INCH LONG WIRE STAPLES, TIE WIRES OR HOG RINGS.
- CUT FABRIC TO REQUIRED WIDTH, UNROLL ALONG LENGTH OF BARRIER AND DRAPE OVER BARRIER. SECURE FABRIC TO MESH WITH TWINE, STAPLES, OR SIMILAR, WITH TRAILING EDGE EXTENDING INTO ANCHOR TRENCH.
- BACKFILL TRENCH OVER FILTER FABRIC TO ANCHOR.

TARGETED POLLUTANTS
- ■ SEDIMENT
- □ NUTRIENTS
- □ TOXIC MATERIALS
- □ OIL & GREASE
- □ FLOATABLE MATERIALS
- □ OTHER WASTE

■ HIGH IMPACT
■ MEDIUM IMPACT
□ LOW OR UNKNOWN IMPACT

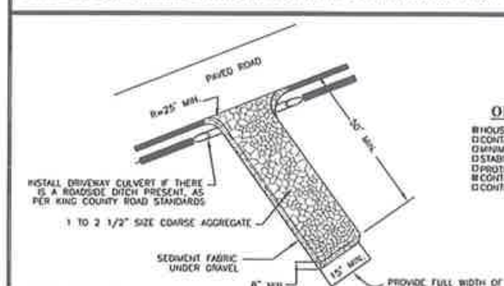
LIMITATIONS:
- RECOMMEND MAXIMUM DRAINAGE AREA OF 0.5 ACRE PER 100 FEET OF FENCE
- RECOMMEND MAXIMUM UPGRADIENT SLOPE LENGTH OF 150 FEET
- RECOMMEND MAXIMUM UPHILL GRADE OF 2:1 (50%)
- RECOMMEND MAXIMUM FLOW RATE OF 0.5 CFS
- PONDING SHOULD NOT BE ALLOWED BEHIND FENCE

IMPLEMENTATION REQUIREMENTS
- ■ CAPITAL COSTS
- ■ O&M COSTS
- ■ MAINTENANCE
- □ TRAINING

■HIGH ■MEDIUM □LOW

MAINTENANCE:
- INSPECT IMMEDIATELY AFTER ANY RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
- LOOK FOR RUNOFF BYPASSING ENDS OF BARRIERS OR UNDERCUTTING BARRIERS.
- REPAIR OR REPLACE DAMAGED AREAS OF THE BARRIER AND REMOVE ACCUMULATED SEDIMENT.
- REANCHOR FENCE AS NECESSARY TO PREVENT SHORTCUTTING.
- REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ½ THE HEIGHT OF THE FENCE.

BMP: STABILIZED CONSTRUCTION ENTRANCE AND WASH AREA



OBJECTIVES
- ■ HOUSEKEEPING PRACTICES
- □ CONTAIN WASTE
- □ MINIMIZE DISTURBED AREAS
- □ STABILIZE DISTURBED AREAS
- □ PROTECT SLOPES/CHANNELS
- ■ CONTROL SITE PERIMETER
- □ CONTROL INTERNAL EROSION

DESCRIPTION:
A STABILIZED PAD OF CRUSHED STONE LOCATED WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES THE SITE FROM OR TO THE PAVED SURFACE. THE AREA CAN BE USED TO SPRAY OFF VEHICLES BEFORE THEY LEAVE THE SITE.

APPLICATION:
AT ANY POINT OF INGRESS OR EGRESS AT A CONSTRUCTION SITE WHERE ADJACENT TRAVELED WAY IS PAVED. GENERALLY APPLIES TO SITES OVER 2 ACRES UNLESS SPECIAL CONDITIONS EXIST.

TARGETED POLLUTANTS
- ■ SEDIMENT
- □ NUTRIENTS
- □ TOXIC MATERIALS
- □ OIL & GREASE
- □ FLOATABLE MATERIALS
- □ OTHER CONSTRUCTION WASTE

■ HIGH IMPACT
■ MEDIUM IMPACT
□ LOW OR UNKNOWN IMPACT

INSTALLATION/APPLICATION CRITERIA:
- CLEAR AND GRUB AREA AND GRADE TO PROVIDE MAXIMUM SLOPE OF 2%.
- COMPACT SUB GRADE AND PLACE FILTER FABRIC IF DESIRED (RECOMMENDED FOR ENTRANCES TO REMAIN FOR MORE THAN 3 MONTHS).
- PLACE COARSE AGGREGATE, 1 TO 2 1/2 INCHES IN SIZE, TO A MINIMUM DEPTH OF 8 INCHES.
- PROVIDE WATER TO THE AREA THAT CAN BE USED TO SPRAY OFF VEHICLES AS NEEDED TO PREVENT THE TRACKING OF MUD OFF OF THE CONSTRUCTION SITE. THIS MAY NOT BE NEEDED DURING DRY PERIODS OF WORK, BUT IS NEEDED WHEN CONSTRUCTION IS PROCEEDING UNDER WET CONDITION.
- PROVIDE BERMS AS NEEDED TO PREVENT SEDIMENT LADEN WASH WATER FROM ENTERING STORM WATER FACILITIES OR OTHER WATER BODIES, OR LEAVING THE SITE.

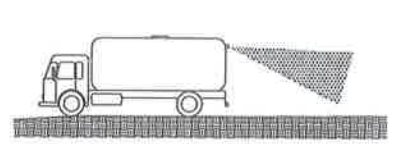
IMPLEMENTATION REQUIRED
- ■ CAPITAL COSTS
- ■ O&M COSTS
- ■ MAINTENANCE
- □ TRAINING

■HIGH ■MEDIUM □LOW

LIMITATIONS:
- REQUIRES PERIODIC TOP DRESSING WITH ADDITIONAL STONES.
- SHOULD BE USED IN CONJUNCTION WITH STREET SWEEPING ON ADJACENT PUBLIC RIGHT-OF-WAY.
- MUST BE SITUATED SUCH THAT WASTE WATER DOES NOT RUN OFF SITE.

MAINTENANCE:
- INSPECT DAILY FOR LOSS OF GRAVEL OR SEDIMENT BUILDUP.
- INSPECT ADJACENT ROADWAY FOR SEDIMENT DEPOSIT AND CLEAN BY SHOVELING AND SWEEPING.
- REPAIR ENTRANCE AND REPLACE GRAVEL AS REQUIRED TO MAINTAIN CONTROL IN GOOD WORKING CONDITION.
- EXPAND STABILIZED AREA AS REQUIRED TO ACCOMMODATE TRAFFIC AND PREVENT EROSION AR DRIVEWAYS.

BMP: DUST CONTROLS



OBJECTIVES
- ■ HOUSEKEEPING PRACTICES
- □ CONTAIN WASTE
- ■ MINIMIZE DISTURBED AREAS
- ■ STABILIZE DISTURBED AREAS
- □ PROTECT SLOPES/CHANNELS
- □ CONTROL SITE PERIMETER
- □ CONTROL INTERNAL EROSION

DESCRIPTION:
DUST CONTROL MEASURES ARE USED TO STABILIZE SOIL FROM WIND EROSION, AND REDUCE DUST BY CONSTRUCTION ACTIVITIES.

APPLICATION:
DUST CONTROL IS USEFUL IN ANY PROCESS AREA, LOADING AND UNLOADING AREA, MATERIAL HANDLING AREAS, AND TRANSFER AREAS WHERE DUST IS GENERATED. STREET SWEEPING IS LIMITED TO AREAS THAT ARE PAVED.

TARGETED POLLUTANTS
- ■ SEDIMENT
- □ NUTRIENTS
- □ TOXIC MATERIALS
- □ OIL & GREASE
- □ FLOATABLE MATERIALS
- □ OTHER WASTE

■ HIGH IMPACT
■ MEDIUM IMPACT
□ LOW OR UNKNOWN IMPACT

INSTALLATION/APPLICATION CRITERIA:
- TWO KINDS OF STREET SWEEPERS ARE COMMON: BRUSH AND VACUUM. VACUUM SWEEPERS ARE MORE EFFICIENT AND WORK BEST WHEN THE AREA IS DRY.
- MECHANICAL EQUIPMENT SHOULD BE OPERATED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS AND SHOULD BE INSPECTED REGULARLY.
- WATER MAY BE SPRAYED ON THE GROUND SURFACE TO MOISTEN DRY SOILS, MAKING IT LESS SUSCEPTIBLE TO WIND EROSION.

IMPLEMENTATION REQUIRED
- ■ CAPITAL COSTS
- □ O&M COSTS
- ■ MAINTENANCE
- ■ TRAINING

■HIGH ■MEDIUM □LOW

LIMITATIONS:
- STREET SWEEPING IS LABOR AND EQUIPMENT INTENSIVE AND MAY NOT BE EFFECTIVE FOR ALL POLLUTANTS.
- WATER SPRAYED FROM WATER TRUCKS MUST BE DONE AT A RATE SUCH THAT THE WATER IS ABSORBED IN THE SOIL; IF EXCESSIVE AMOUNTS OF WATER ARE USED, IT MAY RUN OFF, CARRYING SOIL WITH IT.

MAINTENANCE:
IF EXCESS WATER RESULTS FROM WATER SPRAYING, DUST-CONTAMINATED WATERS SHOULD NOT BE ALLOWED TO RUN OFF SITE. AREAS MAY NEED TO BE RESPRAYED TO KEEP DUST FROM SPREADING.

BMP: GRADING PRACTICES

SOILS EXPOSED FROM LAND GRADING ACTIVITIES ARE VERY VULNERABLE TO EROSION

OBJECTIVES
- □ HOUSEKEEPING PRACTICES
- □ CONTAIN WASTE
- ■ MINIMIZE DISTURBED AREAS
- ■ STABILIZE DISTURBED AREAS
- ■ PROTECT SLOPES/CHANNELS
- □ CONTROL SITE PERIMETER
- ■ CONTROL INTERNAL EROSION

DESCRIPTION:
CONTROL SOIL EROSION BY MINIMIZING THE EXPOSURE OF BARE SOIL TO EROSIVE FORCES. THIS IS DONE BY:
(1) LIMITING THE AMOUNT OF LAND DISTURBED AT ONE TIME IN PREPARATION FOR CONSTRUCTION.
(2) LIMITING THE AMOUNT OF TIME BETWEEN THE DISTURBANCE OF SOIL AND PROTECTION OR STABILIZATION OF DISTURBED SOILS.
(3) USING GRADING PRACTICES TO PROTECT EXPOSED SOILS SUSCEPTIBLE TO STORM WATER RUNOFF. RELATED PRACTICES INCLUDE CONSTRUCTION SEQUENCING, PRESERVATION OF EXISTING VEGETATION, EROSION CONTROL PRACTICES AND SEDIMENT CONTROL PRACTICES.

APPROACH:
- LIMIT THE AREA OF DISTURBANCE TO THOSE AREAS REQUIRING GRADING. THIS PRESERVES EXISTING VEGETATION AND REDUCES THE VULNERABILITY OF SOIL TO EROSION.
- BASED ON EROSION POTENTIAL AND SEDIMENT CONTROL MEASURES ON THE SITE, ESTABLISH WHAT AREAS ARE TO GRADED AT ONE TIME.
- AN UNDISTURBED BUFFER ZONE CONTAINING VEGETATION AT THE LOWEST ELEVATION OF A CONSTRUCTION SITE CAN REDUCE THE TRANSPORT OF SEDIMENT OFF SITE.
- INITIATE SOIL PROTECTION MEASURES DURING THE COURSE OF WORK TO MINIMIZE THE LENGTH OF TIME SOILS EXPOSED TO EROSIVE FORCES.
- CONDUCT WORK IN STAGES SO THAT CONSTRUCTION OR SOIL STABILIZATION OCCURS PROMPTLY AFTER DISTURBANCE OF SOIL.
- ESTABLISH A SCHEDULE GOVERNING THE STABILIZATION OF DISTURBED SLOPES, BOTH IN TERMS OF PASSAGE OF TIME SINCE COMMENCEMENT AND COMPLETION OF DISTURBANCE AND IN TERMS OF PLANTING SEASON.
- LEAVING THE SURFACE OF THE DISTURBED SOIL GRADED IN A ROUGHENED CONDITION (NOT SMOOTH) CAN REDUCE THE QUANTITY AND VELOCITY OF STORM WATER RUNOFF.
- PREVENT STORM WATER RUNOFF FROM RUNNING ONTO STEEP SLOPES FROM ABOVE.
- AVOID LONG, STEEP CUT OR FILL SLOPES THAT ALLOW RUNOFF WATER OF SUFFICIENT QUANTITY OR VELOCITY TO CUT INTO AND ERODE THE SLOPE.

TARGETED POLLUTANTS
- ■ SEDIMENT
- □ NUTRIENTS
- □ HEAVY MATERIALS
- □ TOXIC MATERIALS
- □ OXYGEN DEMANDING SUBSTANCES
- □ OIL & GREASE
- □ FLOATABLE MATERIALS
- □ BACTERIA & VIRUSES

■ HIGH IMPACT
■ MEDIUM IMPACT
□ LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIRED
- ■ CAPITAL COSTS
- □ O&M COSTS
- □ MAINTENANCE
- ■ TRAINING

■HIGH ■MEDIUM □LOW

LIMITATIONS:
- THE SPECIFIC APPROACH TO GRADING ON A PARTICULAR SITE DEPENDS ON THE CONDITIONS OF THE SITE AND SURROUNDING LAND; ENGINEERING JUDGMENT IS REQUIRED TO DESIGN THE APPROACH BEST SUITED FOR EACH SITE.

MAINTENANCE:
- PRACTICES MAY NEED TO VARY FROM THE APPROVED PLAN IF EROSION PROBLEMS APPEAR WHEN STORM WATER RUNOFF OCCURS.

BMP: INSPECTION AND MAINTENANCE

PROFESSIONAL ENGINEER
No. 4939903-2202
JAMES J. MILLIGAN
STATE OF UTAH
2/18/15

APPLICATIONS
- □ MANUFACTURING
- ■ MATERIAL HANDLING
- ■ VEHICLE MAINTENANCE
- □ CONSTRUCTION
- □ COMMERCIAL ACTIVITIES
- □ ROADWAYS
- ■ WASTE CONTAINMENT
- ■ HOUSEKEEPING PRACTICES

DESCRIPTION:
INSPECT AND MAINTAIN ALL STRUCTURAL BMP's (BOTH EXISTING AND NEW) ON A ROUTINE BASIS TO REMOVE POLLUTANTS FROM ENTERING STORM DRAIN INLETS. THIS INCLUDES THE ESTABLISHMENT OF A SCHEDULE FOR INSPECTIONS AND MAINTENANCE.

TARGETED POLLUTANTS
- ■ SEDIMENT
- ■ NUTRIENTS
- □ HEAVY METALS
- ■ TOXIC MATERIALS
- □ OXYGEN DEMANDING SUBSTANCES
- ■ OIL AND GREASE
- ■ FLOATABLE MATERIALS
- □ BACTERIA AND VIRUSES

■ HIGH IMPACT
■ MEDIUM IMPACT
□ LOW OR UNKNOWN IMPACT

APPROACH:
REGULAR MAINTENANCE OF ALL STRUCTURAL BMP's IS NECESSARY TO ENSURE THEIR PROPER FUNCTIONALITY.
- ANNUAL INSPECTIONS.
- PRIORITIZE MAINTENANCE TO CLEAN, MAINTAIN, AND REPAIR OR REPLACE STRUCTURES IN AREAS BEGINNING WITH THE HIGHEST POLLUTANT LOADING.
- CLEAN STRUCTURAL BMP's IN HIGH POLLUTANT AREAS JUST BEFORE THE WET SEASON TO REMOVE SEDIMENTS AND DEBRIS ACCUMULATED DURING THE SUMMER AND FALL.
- KEEP ACCURATE LOGS OF WHAT STRUCTURES WERE MAINTAINED AND WHEN THEY WERE MAINTAINED.
- RECORD THE AMOUNT OF WASTE COLLECTED.

IMPLEMENTATION REQUIRED
- ■ CAPITAL COSTS
- ■ O&M COSTS
- ■ MAINTENANCE
- ■ STAFFING
- □ TRAINING
- □ ADMINISTRATIVE

■HIGH ■MEDIUM □LOW

LIMITATIONS:
- AVAILABILITY OF TRAINED STAFF.

CONSULTING ENGINEERS AND SURVEYORS

GILSON ENGINEERING INC.

GeoStrata Engineering & Geosciences

NORTH SALT LAKE CITY OF UTAH

REVISIONS

REV.	DATE	BY	COMMENTS

SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE	FEBRUARY 2015
DRAWING NAME	ER 102 BMP DETAILS
DESIGNED/DRAWN BY	AL
CHECKED	
APPROVED	

BMP DETAILS

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: D

PROJ.# GEO.021

ER.102