008489

START

ENGINEERING CHANGE NOTICE

Page 1 of 28

1. ECN ~~118341~~

Proj. ECN B-714-24

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.		4. Date
Supplemental [XX] Direct Revision [ ] Change ECN [ ] Temporary [ ] Supersedure [ ] Discovery [ ] Cancel/Void [ ]	TERESA EHRHARD, KEH, TCPC, 6-2381		02-07-90
	5. Project Title/No./Work Order No. SEE BLOCK 12	6. Bldg./Sys./Fac. No. SEE BLOCK 12	7. Impact Level 3
	8. Document Number Affected (include rev. and sheet no.) SEE BLOCK 12	9. Related ECN No(s). SEE BLOCK 12	10. Related PO No. N/A

11a. Modification Work	11b. Work Package Doc. No.	11c. Complete Installation Work	11d. Complete Restoration (Temp. ECN only)
[ ] Yes (fill out Blk. 11b) [ ] No (NA Blks. 11b, 11c, 11d) UNK	UNK	Cog. Engineer Signature & Date	Cog. Engineer Signature & Date

12. Description of Change

BLOCK 5: B-714, GROUT VAULT PAIR (218-E-16-102 & 103) (218-E-16-104 & 105) / ER8007
BLOCK 6: 218-E-16-102 & -103 and 218-E-16-104 & -105
BLOCK 9: ECN B-714-7, -9, -10, -15, -19, -20
BLOCK 8: SPECIFICATION B-714-C2, ~~REV 0~~ 2-7-90 (V-B714C2-003, REV 0) SEE PAGE 9 & 10

AFFECTED DRAWINGS

H-2-77575, SH 2, REV 1	H-2-77636, SH 4, REV 0	H-2-78475, SH 2, REV 0
H-2-77576, SH 1, REV 0	H-2-77638, SH 1, REV 0	H-2-78490, SH 1, REV 0
H-2-77578, SH 1, REV 0	H-2-77638, SH 3, REV 0	H-2-78490, SH 4, REV 0
H-2-77584, SH 1, REV 0	H-2-77639, SH 1, REV 0	H-2-78490, SH 12, REV 0
H-2-77587, SH 1, REV 0	H-2-77639, SH 2, REV 0	H-2-78502, SH 1, REV 0
H-2-77587, SH 2, REV 0	H-2-77641, SH 1, REV 0	H-2-78502, SH 2, REV 0
H-2-77588, SH 1, REV 0	H-2-77642, SH 1, REV 0	H-2-78502, SH 3, REV 0
H-2-77588, SH 2, REV 0	H-2-77642, SH 2, REV 0	H-2-78502, SH 4, REV 0
H-2-77588, SH 4, REV 0	H-2-78446, SH 2, REV 0	H-2-78504, SH 3, REV 0
H-2-77588, SH 5, REV 0	H-2-78447, SH 1, REV 0	H-2-78505, SH 1, REV 0
H-2-77593, SH 1, REV 0	H-2-78448, SH 1, REV 0	H-2-78505, SH 2, REV 0
H-2-77593, SH 2, REV 0	H-2-78455, SH 1, REV 0	H-2-78507, SH 1, REV 0
H-2-77605, SH 2, REV 0	H-2-78455, SH 2, REV 0	H-2-78508, SH 1, REV 0
H-2-77618, SH 1, REV 0	H-2-78458, SH 1, REV 0	H-2-78508, SH 2, REV 0
H-2-77618, SH 4, REV 0	H-2-78458, SH 2, REV 0	
H-2-77618, SH 12, REV 0	H-2-78459, SH 1, REV 0	
H-2-77636, SH 1, REV 0	H-2-78459, SH 2, REV 0	
H-2-77636, SH 2, REV 0	H-2-78459, SH 3, REV 0	
H-2-77636, SH 3, REV 0	H-2-78459, SH 4, REV 0	

APR 1990 RECEIVED EDMC

13a. Justification (mark one)	13b. Justification Details
Criteria Change [XX] Design Improvement [ ] Environmental [ ] As-Found [ ] Facilitate Const. [XX] Const. Error/Omission [ ] Design Error/Omission [ ]	WHC LOI 9050022 (Spec Changes & item 1-10,12,14-27,29-31,33-39,41-53) FACILITATE CONSTRUCTION (Spec Changes & item 11,13,32,40) PNL PERFORMANCE ASSESSMENT (item 28 & 54)

14. Distribution (include name, MSIN, and no. of copies)

KEH DISTRIBUTION

Engrg Doc Cntl	TCPC/5-8-D
Const Doc Cntl	2910E/200E

Station 10 A3-87
L. Garza A3-90

WHC DISTRIBUTION

S. R. Briggs (PE)	R3-43
O. A. Halverson	R3-09
J. R. McGee	S1-54
D. E. Palmer	R3-43
W. J. Powell	R1-48
J. E. Vanbeek	R3-27
D. D. Wodrich	R1-48
A. E. Young	S0-05
Project Files	R1-28

DOE

A. G. Lassila	A5-18

RELEASE STAMP

OFFICIAL RELEASE BY WHC 48
DATE FEB 28 1990
Station #4

A-7900-013 (11/88)

9011731194

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 8-714-24

15. Design Verification Required	16. Cost Impact		17. Schedule Impact (days)
	ENGINEERING	CONSTRUCTION	
☒ Yes	Additional ☒ $ 10,000	Additional ☒ $ 5000	Improvement ☐ NA
☐ No	Savings ☐ $	Savings ☐ $	Delay ☐

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐		☐
Environmental Report	☐	Inspection Plan	☐		☐
Environmental Permit	☐	Inventory Adjustment Request	☐		☐

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision

20. Approvals

OPERATIONS AND ENGINEERING	Signature	Date
Cog. Project Engineer	L.R. Burg	2/15/90
Cog. Project Engr. Mgr.	K.E. Vogt	2/15/90
QA	Jack Bender	2/15/90
Safety	NA	
Security		
Proj. Prog./Dept. Mgr.		
Def. React. Div.		
Chem. Proc. Div.		
Def. Wst. Mgmt. Div.		
Adv. React. Dev. Div.		
Proj. Dept.		
Environ. Div.		
IRM Dept.		
Facility Rep. (Oos)		
Other		

ARCHITECT-ENGINEER	Signature	Date
PE	K.C. Burgard	2/14/90
QA	T.D. Hamp 2/13/90	2/14/90
Safety	L. Archibald	2-12-90
Design C/S	[illegible]	2/7/90
Other PIPING	C.K. Tool	2/7/90
INSTM	H.D. Stephens	2/9/90
ELEC	A.R. Hamilton	2/9/90
ENVIR	R. Y. [illegible]	2-9-90
SPECS	W. [illegible]	2/14/90
DEPARTMENT OF ENERGY		
ADDITIONAL		

VAULTS 218-E-16-102 & 103
CIVIL/STRUCTURAL CHANGES TO DRAWINGS

1) H-2-77575, SH 2, REV 1
SECTION C (ZB4): Modify - see page 11 of this ECN.

2) H-2-77576, SH 1, REV 0
SECTION E (ZB-C3): Modify - see page 12 of this ECN.

3) H-2-77578, SH 1, REV 0
SECTION B (ZC-D3): Modify - see page 13 of this ECN.

4) H-2-77584, SH 1, REV 0
PLAN (ZD7): Delete 1/8"/FT from SLOPE FLOOR callout

5) H-2-77587, SH 1, REV 0
A) PLAN (ZD3): Modify - see page 14 of this ECN.
B) TABLE (ZB1-2): Add the following riser at end of table:

56	8" SCHED 40	SAMPLER & VENT	A H-2-77605	N40492.75	W45476.25

6) H-2-77587, SH 2, REV 0
A) PLAN (ZD3): Modify - see page 14 of this ECN.
B) TABLE (ZB1-2): Add the following riser at end of table:

56	8" SCHED 40	SAMPLER & VENT	A H-2-77605	N40406.25	W45476.25

7) H-2-77588, SH 1, REV 0
PLAN (ZD2): Modify - see page 15 of this ECN.

8) H-2-77588, SH 2, REV 0
Add the following riser at end of table (ZA5-8):

56	8" SCHED 40	SAMPLER & VENT	A H-2-77605	N40492.25	W45476.25	NO ACTION REQUIRED

9) H-2-77588, SH 4, REV 0
PLAN (ZD2): Modify - see page 15 of this ECN.

10) H-2-77588, SH 5, REV 0
Add the following riser at end of table (ZA5-8):

56	8" SCHED 40	SAMPLER & VENT	A H-2-77605	N40406.25	W45476.25	NO ACTION REQUIRED

11) H-2-77593, SH 1, REV 0
PLAN (ZD2, D3, D6, E6): Modify - see page 16 of this ECN.

12) H-2-77593, SH 2, REV 0
A) SECTION A (ZE-F3): Modify - see page 17 of this ECN.
B) PLAN C (ZD8): Modify - see page 18 of this ECN.

VAULTS -102 & -103 CONTINUED

PIPING CHANGES TO DRAWINGS

13) H-2-77605, SH 2, REV 0
SECTION C (ZE4): Change 1/4" THK x 96" OD ASTM A285 GR C to
5/16" THK x 96" OD ASTM A516 GR 70

INSTRUMENTATION CHANGES TO DRAWINGS

14) H-2-77618, SH 1, REV 0
A) Modify PLC HARDWARE TERMINAL PANEL IDENTIFIER as shown on page 21 of this ECN.
B) Add ULTRASONIC SIGNAL to LEGEND as shown on page 21 of this ECN.

15) H-2-77618, SH 4, REV 0
Change LEACHATE SUMPS as shown on page 22 of this ECN.

16) H-2-77618, SH 12, REV 0
Change LEACHATE SUMPS as shown on page 22 of this ECN.

ELECTRICAL CHANGES TO DRAWINGS

17) H-2-77636, SH 1, REV 0
A) Delete LEACHATE SUMP LEVEL IND XMTR CONN DIAG (ZE1-F2)
B) LONG TERM LEACHATE SUMP PUMPS ELEMENTARY DIAG (ZB5)
Change TO LEVEL IND/XMTR ZONE 2F to read
TO LEVEL IND/XMTR LIT-LS-102-1A OR -1B SH 2, ZONE B6

18) H-2-77636, SH 2, REV 0
Add CONNECTION DIAGRAM as shown on page 23 of this ECN.

19) H-2-77636, SH 3, REV 0
A) Delete LEACHATE SUMP LEVEL IND XMTR CONN DIAG (ZE1-F2)
B) LONG TERM LEACHATE SUMP PUMPS ELEMENTARY DIAG (ZB5)
Change TO LEVEL IND/XMTR ZONE 2F to read
TO LEVEL IND/XMTR LIT-LS-103-1A OR -1B SH 4, ZONE D2

20) H-2-77636, SH 4, REV 0
Add CONNECTION DIAGRAM as shown on page 24 of this ECN.

21) H-2-77638, SH 1, REV 0
Delete NOTE 20 (ZB1-2)

22) H-2-77638, SH 3, REV 0
A) DETAIL 5 (ZF1): Change SEE NOTE 20 to read
CONNECTOR, SEE DWG H-2-77636, SH 2
B) DETAIL 14 (ZF4): Change SEE NOTE 20 to read
CONNECTOR, SEE DWG H-2-77636, SH 4

23) H-2-77639, SH 1, REV 0
ELEVATION J (ZE8): Change LEVEL INDICATING TRANSMITTER
LIT-LS-102 (BY OTHERS)
to read LEVEL INDICATING TRANSMITTER
LIT-LS-102-1A OR -1B (BY OTHERS)

VAULTS -102 & -103 CONTINUED
INSTRUMENTATION CHANGES TO DRAWINGS

24) H-2-77639, SH 2, REV 0
ELEVATION K (ZD5): Change LEVEL INDICATING TRANSMITTER
LIT-LS-103 (BY OTHERS)
to read LEVEL INDICATING TRANSMITTER
LIT-LS-103-1A OR -1B (BY OTHERS)

ELECTRICAL CHANGES TO DRAWINGS CONTINUED

25) H-2-77641, SH 1, REV 0
A) In WIRE NUMBERS column for GWD63 & GWD79 (ZF4 & D4) revise as shown on page 25 of this ECN.
B) In TO column for GWD100 (ZC5)(affects ECN B-714-15, pg 23, item 11E) Change LIT-LS-102 to read LIT-LS-102-1B OR -1B
C) In TO column for GWD105 (ZC5) Change LIT-LS-103 to read LIT-LS-103-1A OR -1B
D) Revise NOTE 8 to read as follows (ZA7-8):
CABLE PROVIDED BY OTHERS (SEE DWG H-2-77617).

26) H-2-77642, SH 1, REV 0
A) In EQUIP NAME column for device LEACHATE SUMP LEVEL (ZD7)
Change LE-LS-102 (LEACH LEVEL)
LIT-LS-102 (XMTR)
to read LE-LS-102-1A OR -1B (TRANSDUCER)
LIT-LS-102-1A OR -1B (XMTR)
B) In EQUIP NAME column for device LEACHATE SUMP LEVEL (ZD3)
Change LIT-LS-102 to read LIT-LS-102-1A OR -1B

27) H-2-77642, SH 2, REV 0
A) In EQUIP NAME column for device LEACHATE SUMP LEVEL (ZD7)
Change LE-LS-103 (LEACH LEVEL)
LIT-LS-103 (XMTR)
to read LE-LS-103-1A OR -1B (TRANSDUCER)
LIT-LS-103-1A OR -1B (XMTR)
B) In EQUIP NAME column for device LEACHATE SUMP LEVEL (ZD3)
Replace line with LIT-LS-103-1A OR -1B XMTR

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28) ECN B-714-19, PAGE 10, 13 & 14
A) Modify SECTION D - see page 19 of this ECN.
(Ref: H-2-77575, SH 2, REV 1)
B) Modify SECTION D - see page 19 of this ECN.
(Ref: H-2-77576, SH 1, REV 0)
C) Modify SECTION A - see page 20 of this ECN.
(Ref: H-2-77578, SH 1, REV 0)

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VAULTS 218-E-16-104 & 105
CIVIL/STRUCTURAL CHANGES TO DRAWINGS

29) H-2-78446, SH 2, REV 0
SECTION C (ZC3): Modify - see page 11 of this ECN.

30) H-2-78447, SH 1, REV 0
SECTION E (ZB-C4): Modify - see page 12 of this ECN.

31) H-2-78448, SH 1, REV 0
SECTION B (ZE-F2): Modify - see page 13 of this ECN.

32) H-2-78455, SH 1, REV 0
PLAN (ZD2): Modify - see page 16 of this ECN.

33) H-2-78455, SH 2, REV 0
A) SECTION A (ZE-F2): Modify - see page 17 of this ECN.
B) SECTION C (ZD7): Modify - see page 18 of this ECN.

34) H-2-78458, SH 1, REV 0
A) PLAN (ZD3): Modify - see page 14 of this ECN.
B) TABLE (ZB1-2): Add the following riser at end of table:

56	8" SCHED 40	SAMPLER & VENT	A H-2-78475	N40308.75	W45476.25

35) H-2-78458, SH 2, REV 0
A) PLAN (ZD3): Modify - see page 14 of this ECN.
B) TABLE (ZB1-2): Add the following riser at end of table:

56	8" SCHED 40	SAMPLER & VENT	A H-2-78475	N40222.25	W45476.25

36) H-2-78459, SH 1, REV 0
PLAN (ZD2): Modify - see page 15 of this ECN.

37) H-2-78459, SH 2, REV 0
Add the following riser at end of table (ZA5-8):

56	8" SCHED 40	SAMPLER & VENT	A H-2-78475	N40308.25	W45476.25	NO ACTION REQUIRED

38) H-2-78459, SH 3, REV 0
PLAN (ZD2): Modify - see page 15 of this ECN.

39) H-2-78459, SH 4, REV 0
Add the following riser at end of table (ZA5-8):

56	8" SCHED 40	SAMPLER & VENT	A H-2-78475	N40222.25	W45476.25	NO ACTION REQUIRED

VAULTS -104 & -105 CONTINUED

PIPING CHANGES TO DRAWINGS

40) H-2-78475, SH 2, REV 0
SECTION C (ZE4): Change 1/4" THK x 96" OD ASTM A285 GR C to
5/16" THK x 96" OD ASTM A516 GR 70

INSTRUMENTATION CHANGES TO DRAWINGS

41) H-2-78490, SH 1, REV 0
A) Modify PLC HARDWARE TERMINAL PANEL IDENTIFIER (ZE-F4) as shown on page 21 of this ECN.
B) Add ULTRASONIC SIGNAL to LEGEND (ZB8) as shown on page 21 of this ECN.

42) H-2-78490, SH 4, REV 0
Change LEACHATE SUMPS (ZE-F1, A-D2) as shown on page 22 of this ECN.

43) H-2-78490, SH 12, REV 0
Change LEACHATE SUMPS (ZE-F1, A-D2) as shown on page 22 of this ECN.

ELECTRICAL CHANGES TO DRAWINGS

44) H-2-78502, SH 1, REV 0
A) Delete LEACHATE SUMP LEVEL XMTR CONN DIAG (ZE1-F2)
B) LONG TERM LEACHATE SUMP PUMPS ELEMENTARY DIAG (ZB5)
Change TO LEVEL IND/XMTR ZONE 2F
to read TO LEVEL IND/XMTR LIT-LS-104-1A OR -1B SH 2, ZONE D2

45) H-2-78502, SH 2, REV 0
Add CONNECTION DIAGRAM as shown on page 26 of this ECN.

46) H-2-78502, SH 3, REV 0
A) Delete LEACHATE SUMP LEVEL XMTR CONN DIAG (ZE1-F2)
B) LONG TERM LEACH SUMP PUMPS ELEMENTARY DIAG (ZB5)
Change TO LEVEL IND/XMTR ZONE 2F
to read TO LEVEL IND/XMTR LIT-LS-105-1A OR -1B SH 4, ZONE D2

47) H-2-78502, SH 4, REV 0
Add CONNECTION DIAGRAM as shown on page 27 of this ECN.

48) H-2-78504, SH 3, REV 0
A) ELEVATION J (ZF3): Change SEE NOTE 14
to read CONNECTOR, SEE DWG H-2-78502, SH 2
B) ELEVATION K (ZF2): Change SEE NOTE 14
to read CONNECTOR, SEE DWG H-2-78502, SH 4

49) H-2-78505, SH 1, REV 0
ELEVATION (ZE8): Change *LEVEL INDICATING TRANSMITTER
LIT-LS-104
to read *LEVEL INDICATING TRANSMITTER
LIT-LS-104-1A OR -1B

VAULT -104 & -105 CONTINUED
ELECTRICAL CHANGES TO DRAWINGS

50) H-2-78505, SH 2, REV 0
ELEVATION (ZD5): Change LEVEL INDICATING TRANSMITTER
LIT-LS-105*
to read LEVEL INDICATING TRANSMITTER
*LIT-LS-105-1A OR -1B

51) H-2-78507, SH 1, REV 0
A) In WIRE NUMBER column for GWD133 & GWD143 (ZF4 & E4) revise as shown on page 28 of this ECN.
B) In TO column for GWD158 (ZD5) Change LIT-LS-104 to read LIT-LS-104-1A OR -1B
C) In TO column for GWD165 (ZD5) Change LIT-LS-105 to read LIT-LS-105-1A OR -1B
D) Revise NOTE 8 to read as follows (ZA7-8):
CABLE PROVIDED BY OTHERS (SEE DWG H-2-77617).

52) H-2-78508, SH 1, REV 0
A) In EQUIP NAME column for device LEACHATE SUMP LEVEL (ZD7)
Change LE-LS-104 (LEACH LEVEL)
LIT-LS-104 (XMTR)
to read LE-LS-104-1A OR -1B (TRANSDUCER)
LIT-LS-104-1A OR -1B (XMTR)
B) In EQUIP NAME column for device LEACHATE SUMP LEVEL (ZD3)
Change LIT-LS-104 (XMTR) to read LIT-LS-104-1A OR -1B (XMTR)

53) H-2-78508, SH 2, REV 0
A) In EQUIP NAME column for device LEACHATE SUMP LEVEL (ZD7)
Change LE-LS-105 (LEACH LEVEL)
LIT-LS-105 (XMTR)
to read LE-LS-105-1A OR -1B (TRANSDUCER)
LIT-LS-105-1A OR -1B (XMTR)
B) In EQUIP NAME column for device LEACHATE SUMP LEVEL (D3)
Replace line with LIT-LS-105-1A OR -1B XMTR

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54) ECN B-714-19, PAGE 10, 13 & 14
A) Modify SECTION D - see page 19 of this ECN.
(Ref: H-2-78446, SH 2, REV 0)
B) Modify SECTION D - see page 19 of this ECN.
(Ref: H-2-78447, SH 1, REV 0)
C) Modify SECTION A - see page 20 of this ECN.
(Ref: H-2-78448, SH 1, REV 0)

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CHANGES TO SPECIFICATION B-714-C2

1) SECTION 01300
   A) Para 1.2.2 (affects ECN B-714-7, item 4a)
      Delete last sentence of paragraph.
   B) Para 1.3 SCHEDULE OF SUBMITTALS (QUANTITY COLUMN)
      (affects ECN B-714-7, item 4b, 4c, & 4d; ECN B-714-19, item 1; ECN B-714-20, item 1)
      Change all 2 to 7
      Change all 5 to 10
      Change all 10 to 15

2) SECTION 01400
   A) Article 1.7 (affects ECN B-714-9, item 2a, pg 6 & 8)
      Under SITEWORK, Diffusion Barrier, Off-Site*
      Change Initial to All
      Under CONCRETE, Vault and Basin Cast-In-Place Concrete, Off-Site* or On-Site
      Add H - Initial rebar splicing and/or welding
   B) Article 1.7 (affects ECN B-714-19, item 2, pg 4)
      Under Diffusion Barrier, Off-Site*
      Change Initial to All

3) SECTION 02145 (affects ECN B-714-19)
   A) Para 1.3.1.3 - Change last sentence to read as follows:
      Treated aggregate mixtures stored over 21 days after treatment will be examined by KEH for retreatment before use in diffusion barrier.
   B) Para 2.1.3.1 - Replace with the following:
      Diffusion barrier aggregate shall be treated with approved anti-stripping additive in accordance with Article 2.2. Requirement for use shall be determined by KEH based on temperature and pH modified ASTM D 1664 for each aggregate source.
   C) Para 2.1.3.3 - Add at end of sentence:
      Type N or S
   D) Para 2.2.1.1(b) - Replace with the following:
      Anti-stripping additive: 2.5 to 3 percent by weight of total dry aggregate mixture. Aggregate coating after mixing and aging in stock pile and before mixing with asphalt shall be adequate to meet the requirements of subparagraph 2.2.2.3.
   E) Para 2.2.2.6 - Change WSDOT to WSDOT M46-01,
   F) Add the following paragraphs:
      2.2.2.8 Quantity of asphalt material shall not be reduced by quantity of anti-stripping additive.

      2.2.2.9 Asphalt from each specific source or supplier shall not be blended or mixed with asphalt from other sources or suppliers.

CHANGES TO SPECIFICATION B-714-C2, CONTINUED

4) SECTION 02147 (affects ECN B-714-20)

A) Para 2.1.1.2(a) - Replace the gradation with the following:

Nominal Square Opening Sieve Size	Aggregate Percent	Blended Percent
5/8 in.	100	100
1/2 in.	92 to 100	92 to 100
3/8 in.	85 to 95	85 to 95
No. 4	65 to 75	65 to 75
No. 16	35 to 41	36 to 42
No. 30	25 to 31	27 to 33
No. 50	14 to 20	16 to 22
No. 200	3.5 to 7.5	6.0 to 10.5

B) Para 2.1.3.1 - Replace with the following:
Diffusion break aggregate shall be treated with approved anti-stripping additive in accordance with Article 2.2. Requirement for use shall be determined by KEH based on temperature and pH modified ASTM D 1664 for each aggregate source.

5) SECTION 02755

A) Add the following paragraph:

3.3.2.4 KEH will collect minimum 2 samples of liner material from different rolls, full roll width and at least 2 feet long, from each lot.

6) SECTION 03301

Para 1.4.1.1 - Replace the word "metal" with "permanently marked"

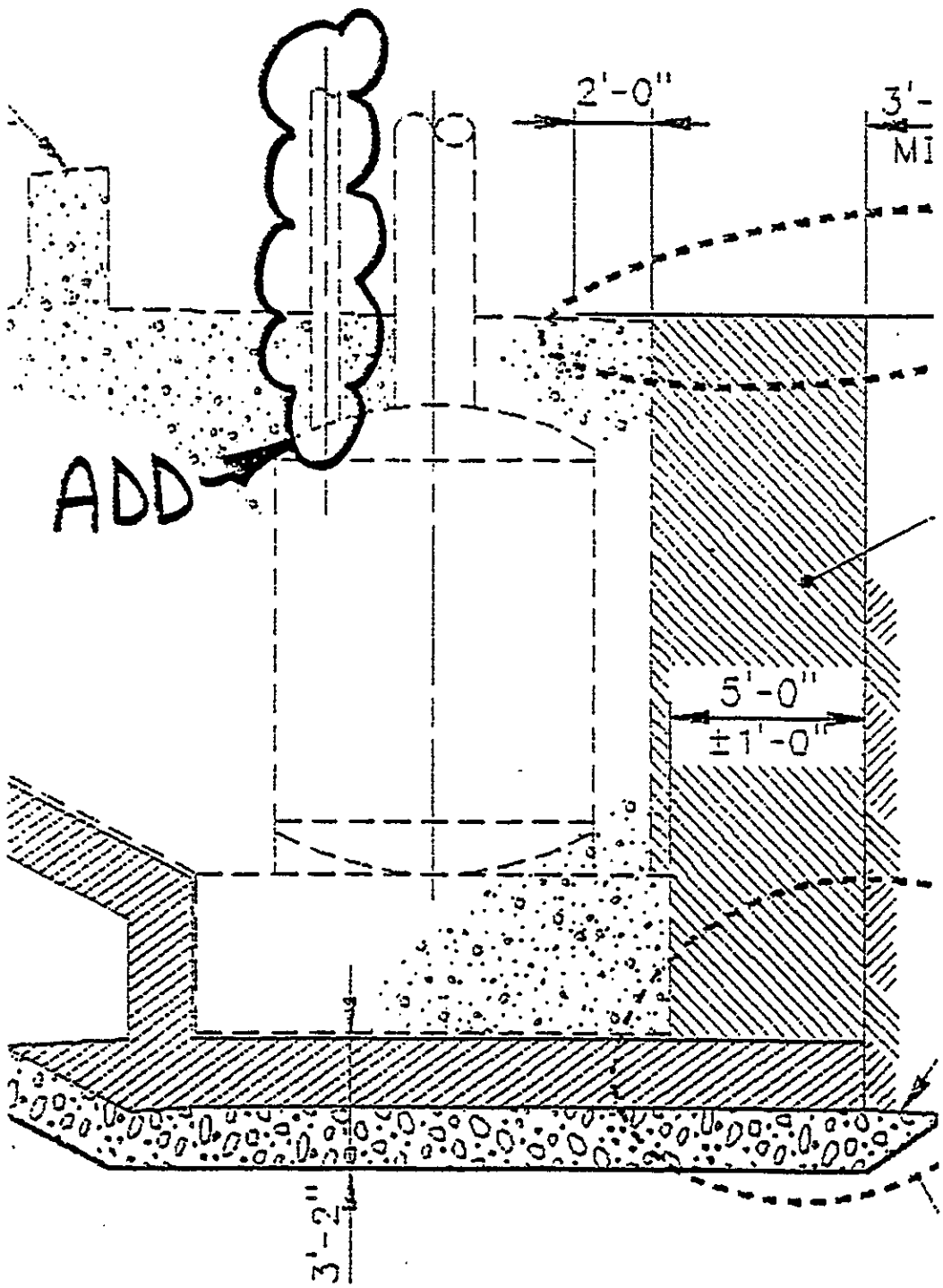
6) SECTION 13440

A) Delete Para 1.3.1.2 & 1.3.1.3
B) Delete Para 2.1.1
C) Renumber Para 2.1.2 to 2.1.1
D) Delete Para 3.2.1.1 (affects ECN B-714-15, item 1, page 21)
E) Delete ...cable and... (affects ECN B-714-15, item 2, page 21)
F) Renumber Para 3.2.1.2 to 3.2.1.1 (affects ECN B-714-15, item 3, page 21)
G) Delete pages 3, 4, & 5 (affects ECN B-714-15, item 4 & 5)
H) Renumber pages 6 & 7 to 3 & 4
J) VENDOR DATA LIST:
EPN Identification: Delete Y-101
Description: Delete Level Instruments and associated equipment
Approval/Data: Delete X's related to Level Instruments and associated equipment
(CVI): Delete X's related to Level Instruments and associated equipment

7) SECTION 16640

Para 2.2.6.2.a.4 - Change 60 volts to 120 volts

KAISER ENGINEERS HANFORD			ENGINEERING CHANGE NOTICE SKETCH			
Ref. Dwg. H-2-77575	Sh. 2	Rev. 1	Prepared By TERESA EHRHARD	Checked By	ECN No. B-714-24	Page 11/28
H-2-78446	2	0	REF: ECN B-714-19, page 39			

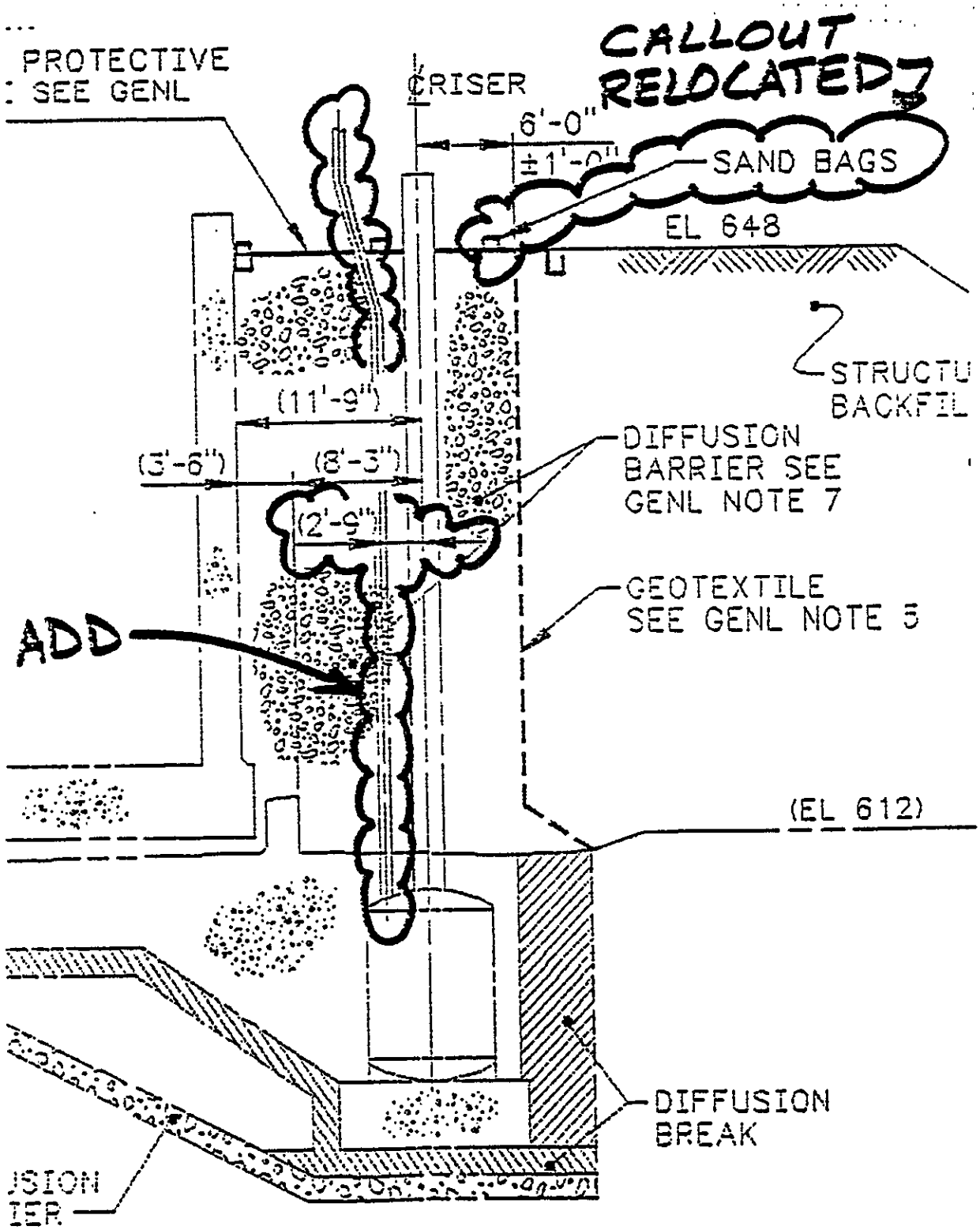


SECTION C

SCALE: 1" = 5'

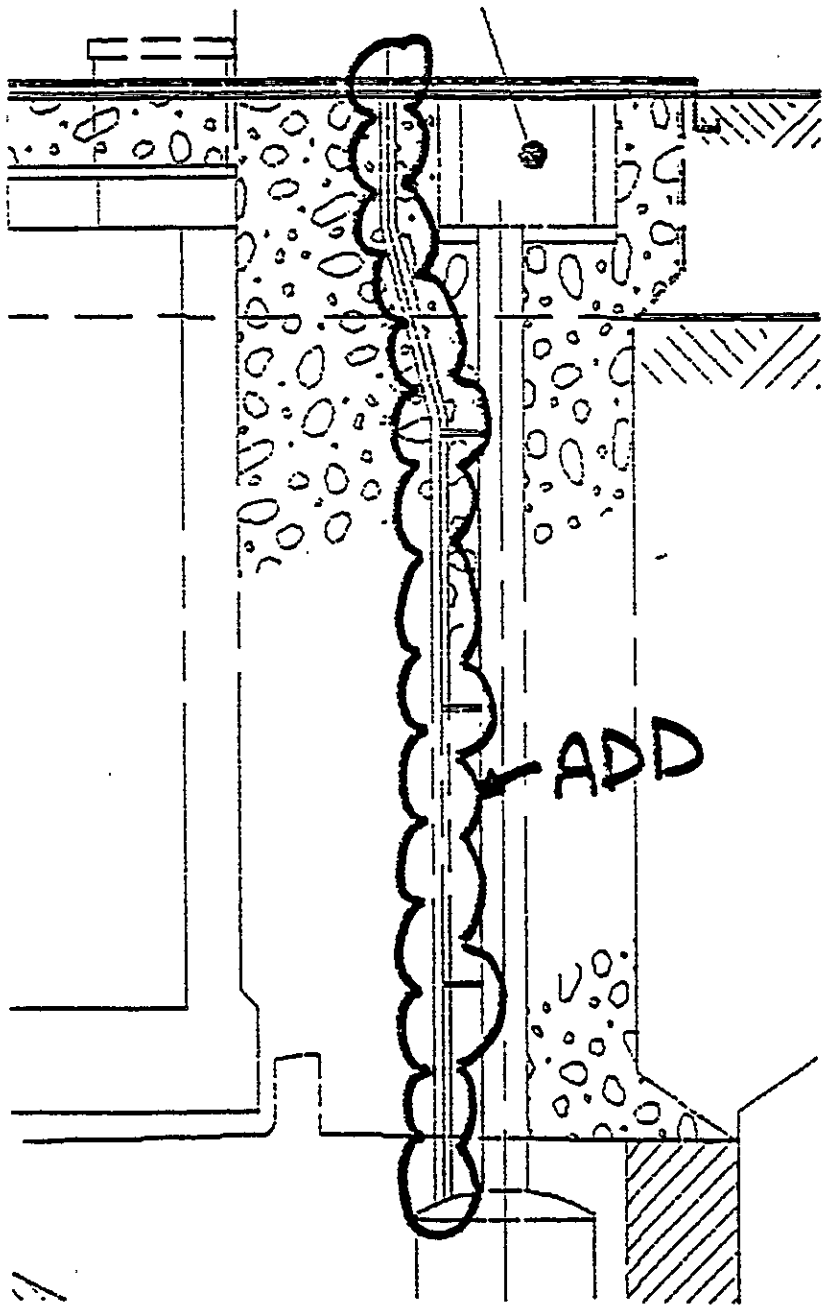
KEH-0159.00 (1/88)

KAISER ENGINEERS HANFORD			ENGINEERING CHANGE NOTICE SKETCH			
Ref. Dwg. H-2-77576	Sh. 1	Rev. 0	Prepared By TERESA EHRHARD	Checked By	ECN No. B-714-24	Page 12/28
H-2-78447	1	0	REF: ECN B-714-19, page 13 (SECTION E)			



KEH-0159.00 (1/88)

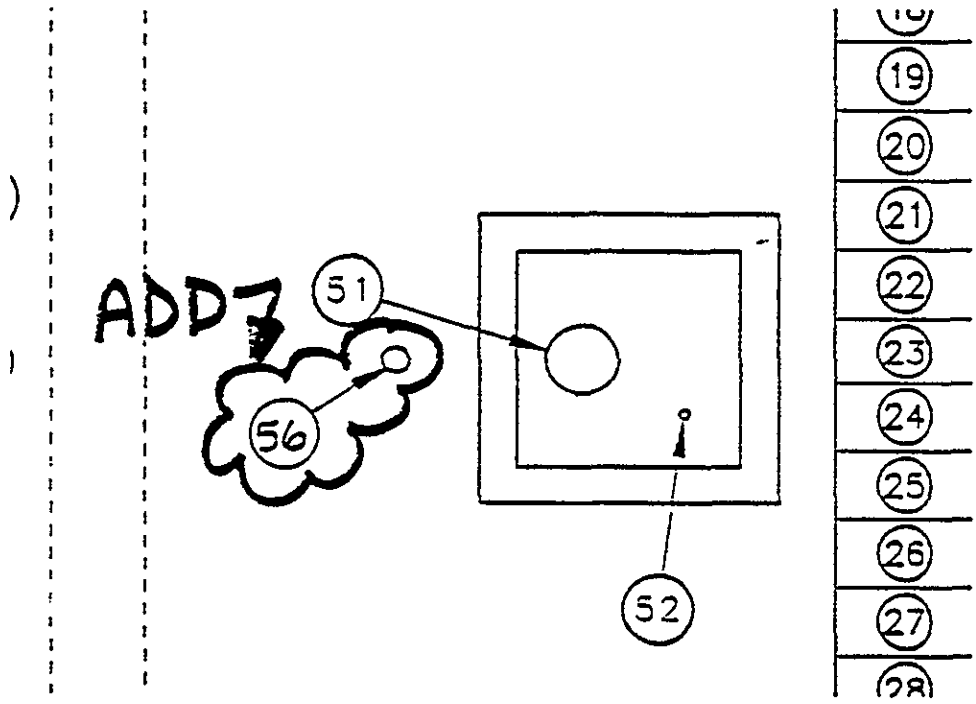
KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77578	1	0	TERESA EHRHARD		B-714-24	13/28
H-2-78448	1	0				



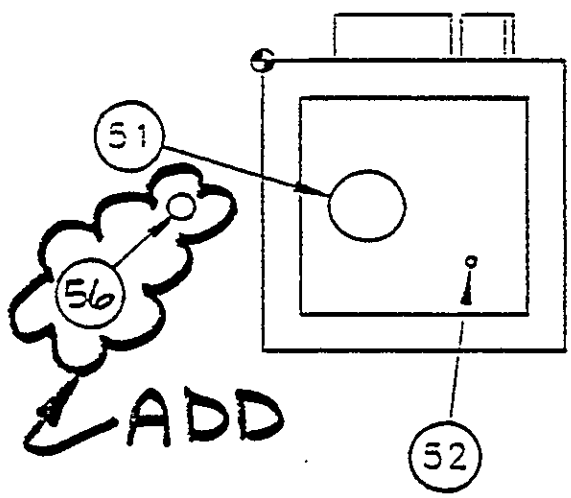
SECTION B

KEH-0159.00 (1/88)

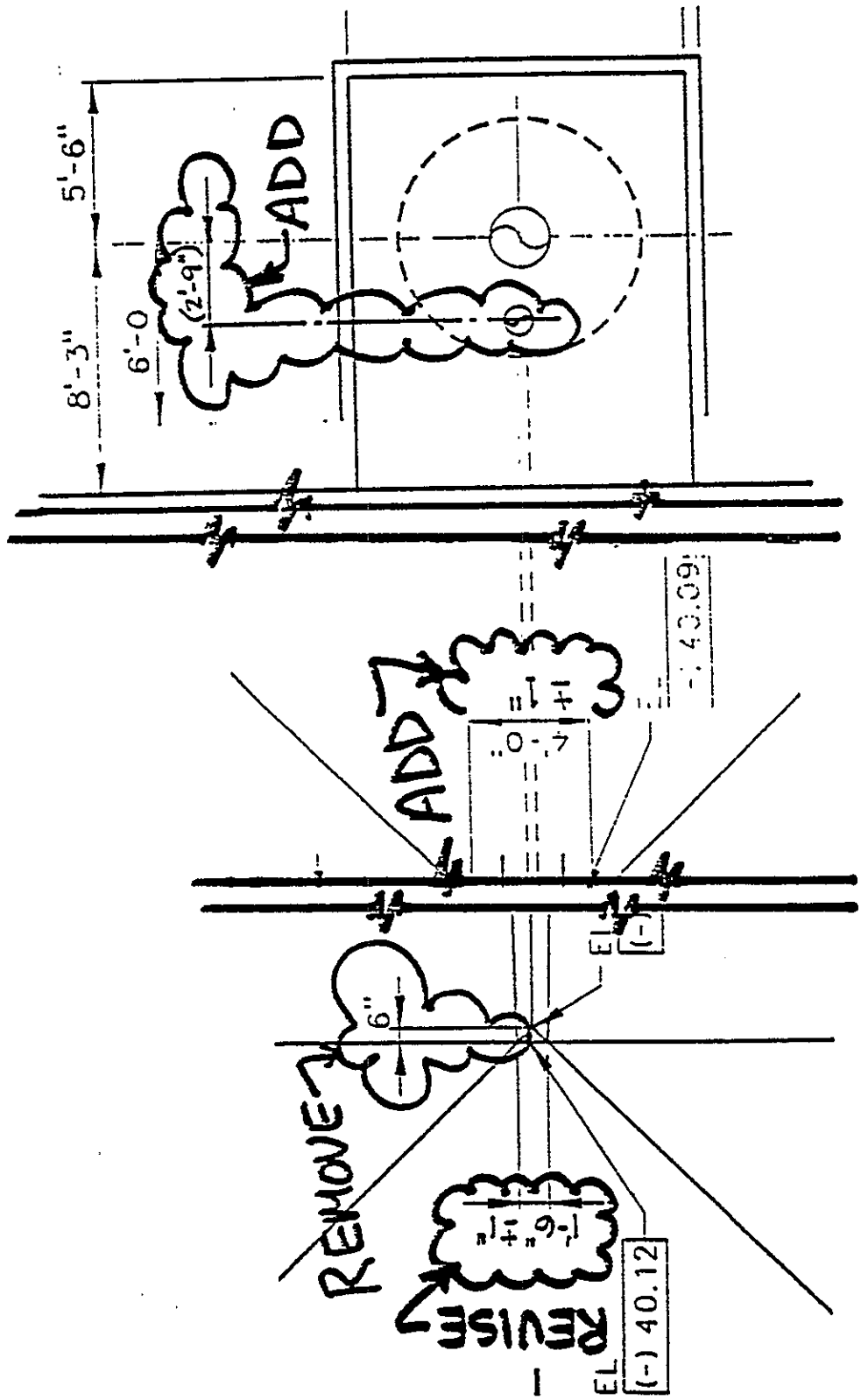
KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77587	1	0	TERESA EHRHARD		B-714-24	14/28
H-2-77587	2	0				
H-2-78458	1	0				
H-2-78458	2	0				



KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77588	1	0	TERESA EHRHARD		B-714-24	15/28
H-2-77588	4	0				
H-2-78459	1	0				
H-2-78459	3	0				

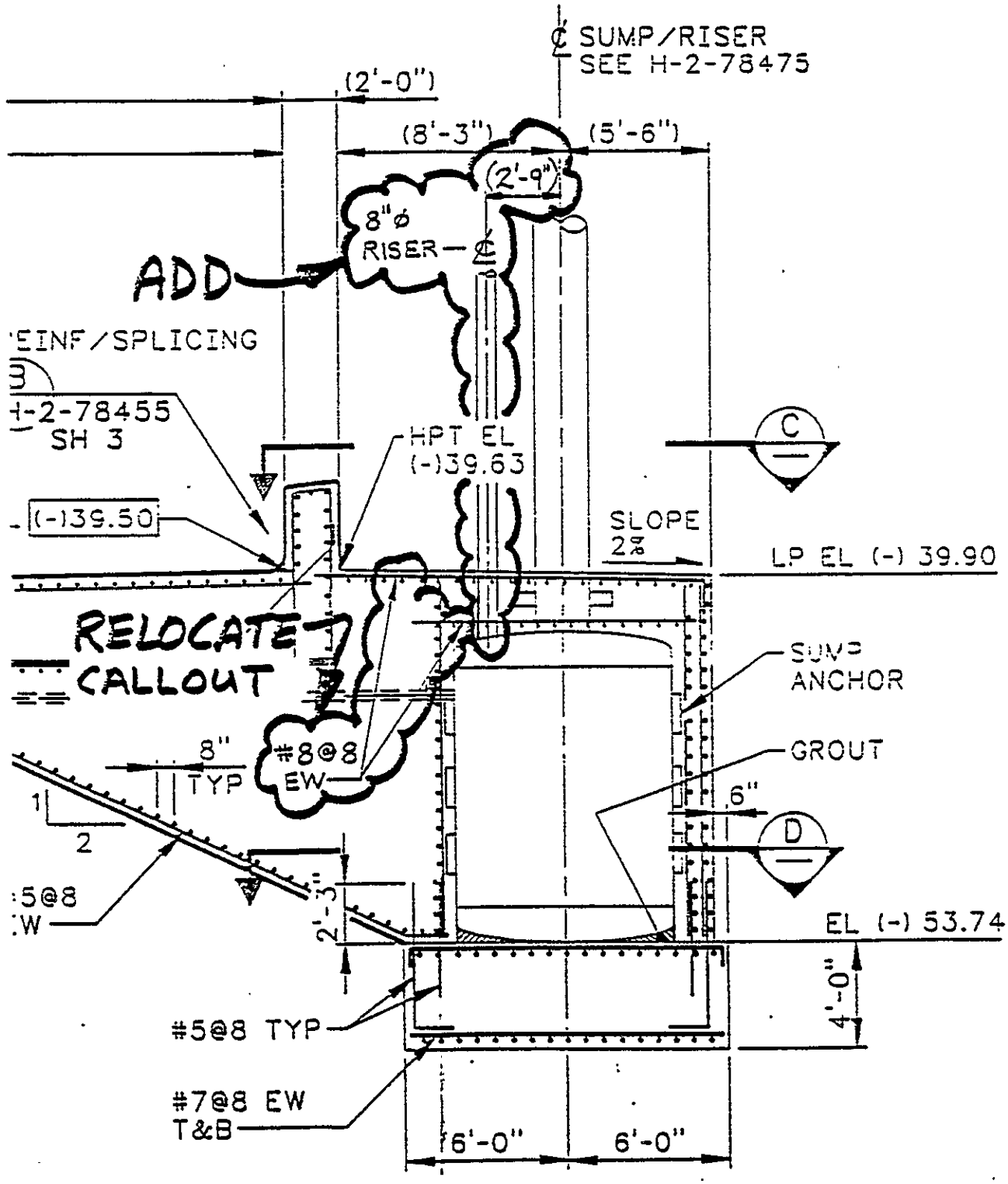


KAISER ENGINEERS HANFORD			ENGINEERING CHANGE NOTICE SKETCH			
Ref. Dwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77593	1	0	TERESA EHRHARD		B-714-24	16/28
H-2-78455	1	0				



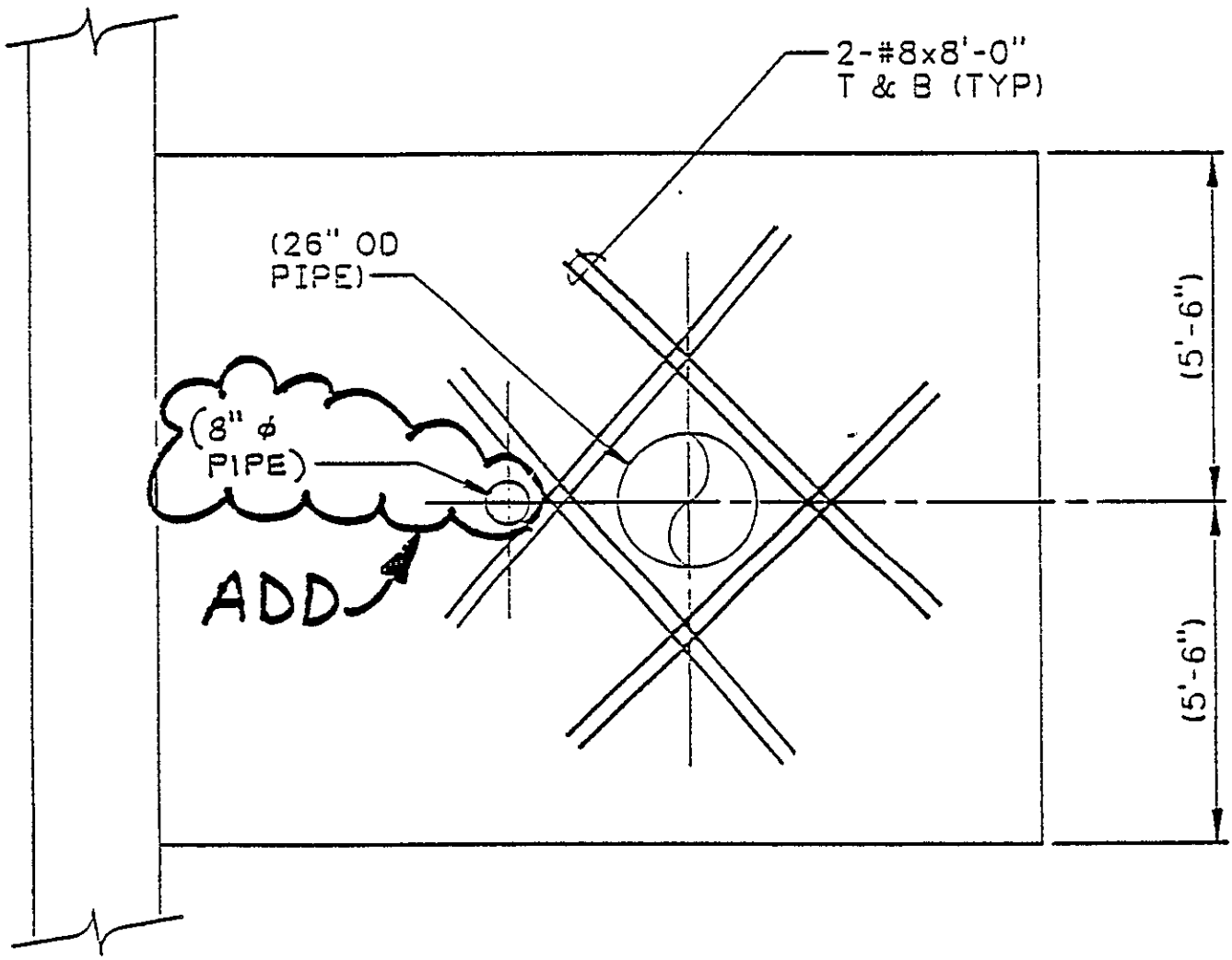
PLAN

KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77593	2	0	TERESA EHRHARD		B-714-24	17/28
H-2-78455	2	0				



KEH-0159.00 (1/88)

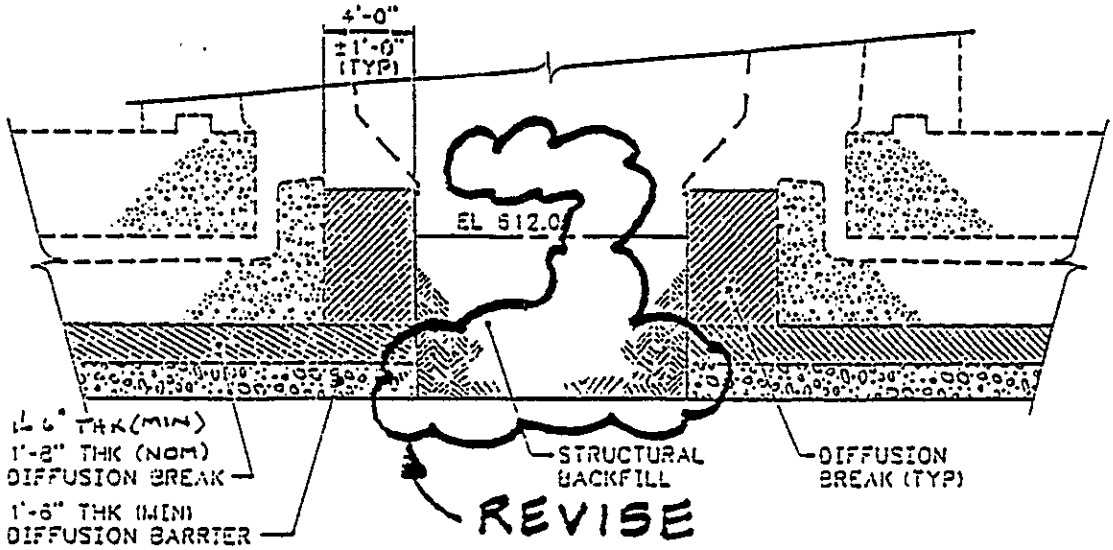
KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77593	2	0	TK EHRHARD		B-714-24	18/28
H-2-78455	2	0				



ADDITIONAL REINF
AT TOP OF SUMP

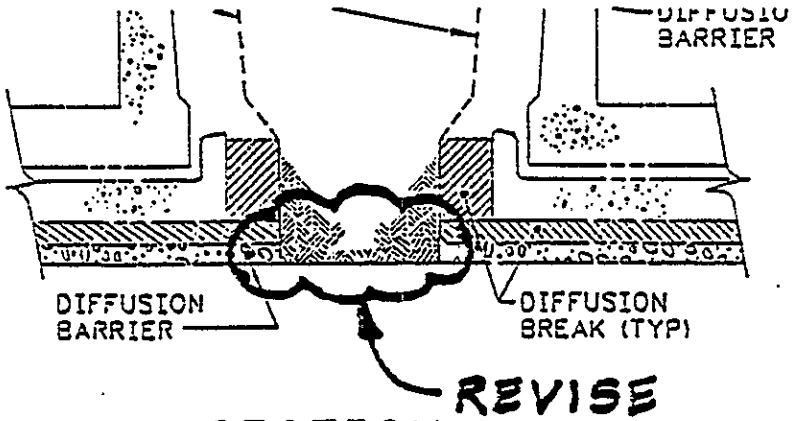
KEH-0159.00 (1/88)

KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg. ECN B-714-19	Sh. 10	Rev. 0	Prepared By STAN SMITH	Checked By	ECN No. B-714-24	Page 19/28
ECN B-714-19	13	0				



SECTION D
SCALE: 1" = 5'

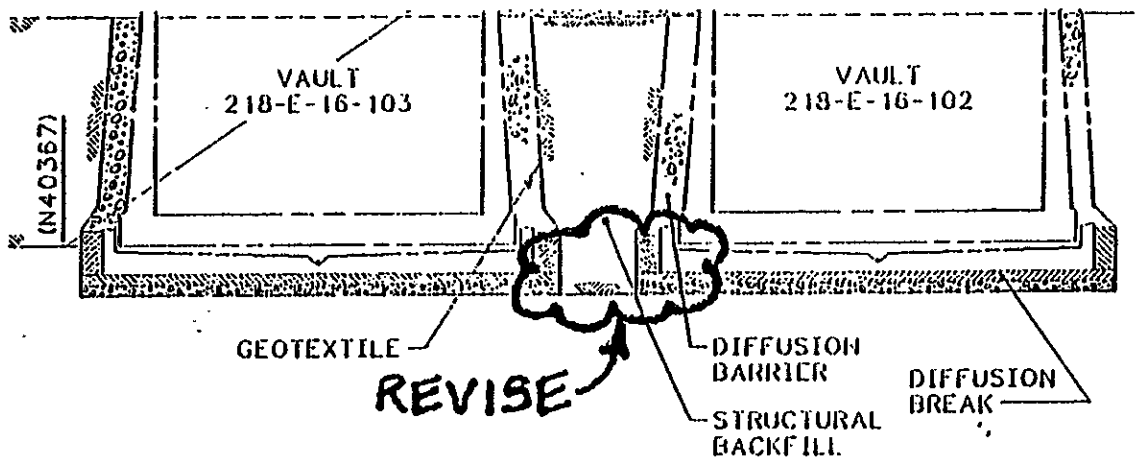
ECN B-714-19 SH 10



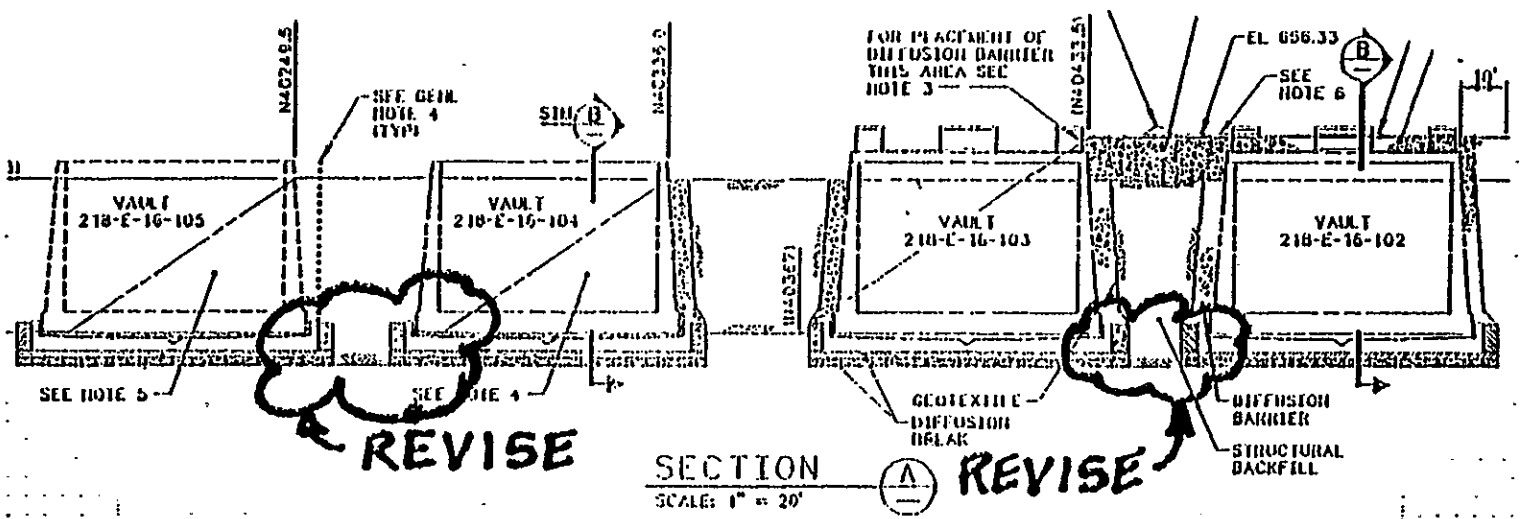
SECTION D
SCALE: 1" = 10'

ECN B-714-19 SH 13

9 0 1 1 7 8 3 1 9 1 3



H-2-77578, SH 1



H-2-78448, SH 1

Ref. Dwg. ECN B-714-19	Sh. 14	Rev. 0	Prepared By STAN SMITH	Checked By	ECN No. B-714-24

KAISER ENGINEERS
HANFORD

ENGINEERING CHANGE NOTICE SKETCH

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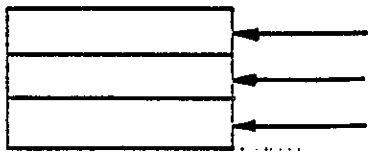
KEH-0159.00 (1/88)

KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77618	1	0	HJ STEFFENS	PC Barnes	B-714-24	21/28
H-2-78490	1	0				

PLC

HARDWARE TERMINAL PANEL IDENTIFIER



FIRST LINE

XX X XXX

- XXX — IDENTIFICATION NUMBER
- X — MICROPROCESSOR INPUT
- XX — INSTRUMENT IDENTIFICATION LETTERS (SEE LETTER IDENTIFICATION CHART)

XX N XXX

- XXX — IDENTIFICATION NUMBER
- N — MICROPROCESSOR OUTPUT
- XX — INSTRUMENT IDENTIFICATION LETTERS (SEE LETTER IDENTIFICATION CHART)

SECOND LINE

TRX-SX-X

- X — CHANNEL NUMBER
- SX — SLOT NUMBER
- TRX — BOARD NUMBER

THIRD LINE

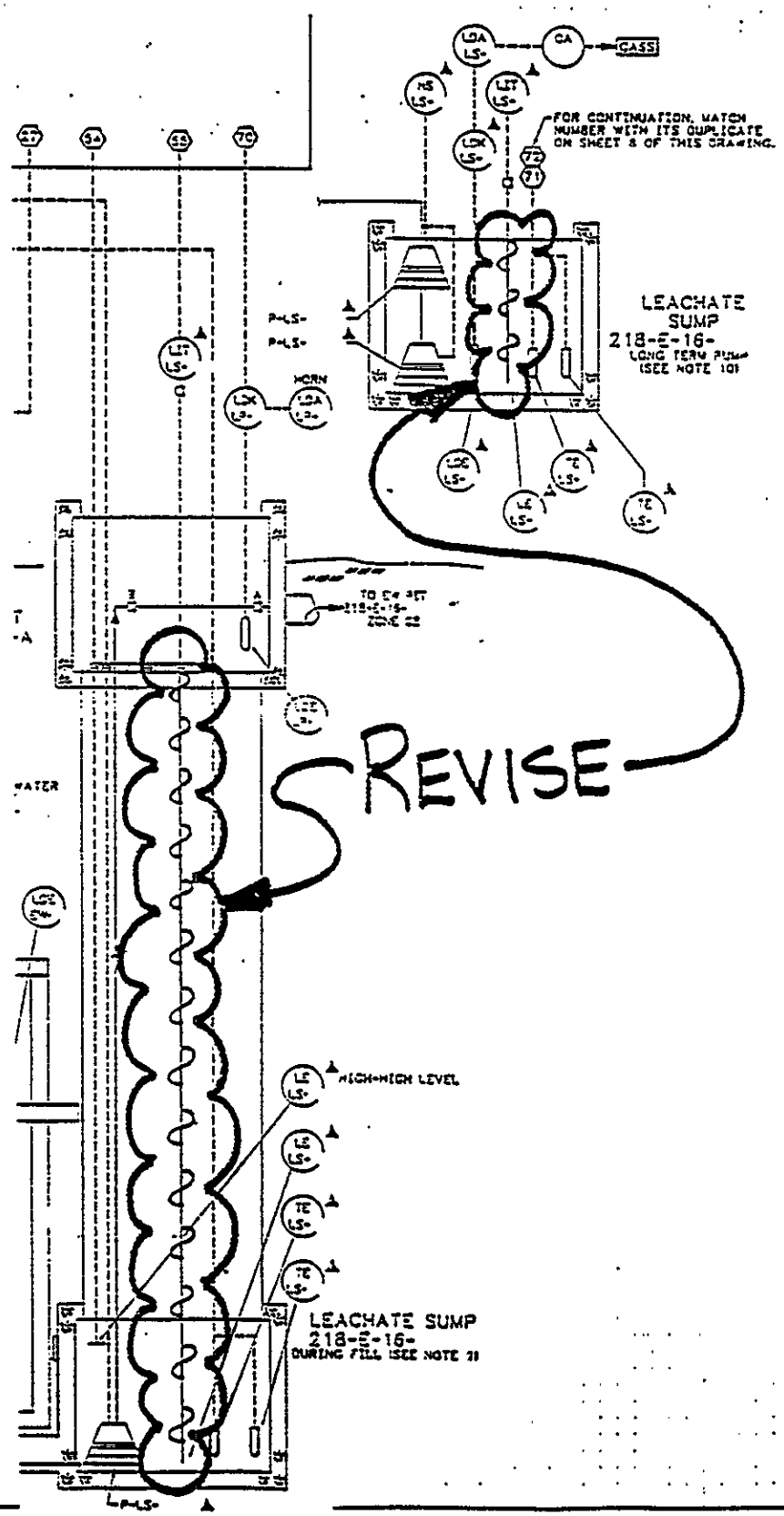
AI-X	ANALOG INPUT
AO-X	ANALOG OUTPUT
DI-X	DISCRETE INPUT
DO-X	DISCRETE OUTPUT

- X — IO RACK IDENTIFICATION

LEGEND

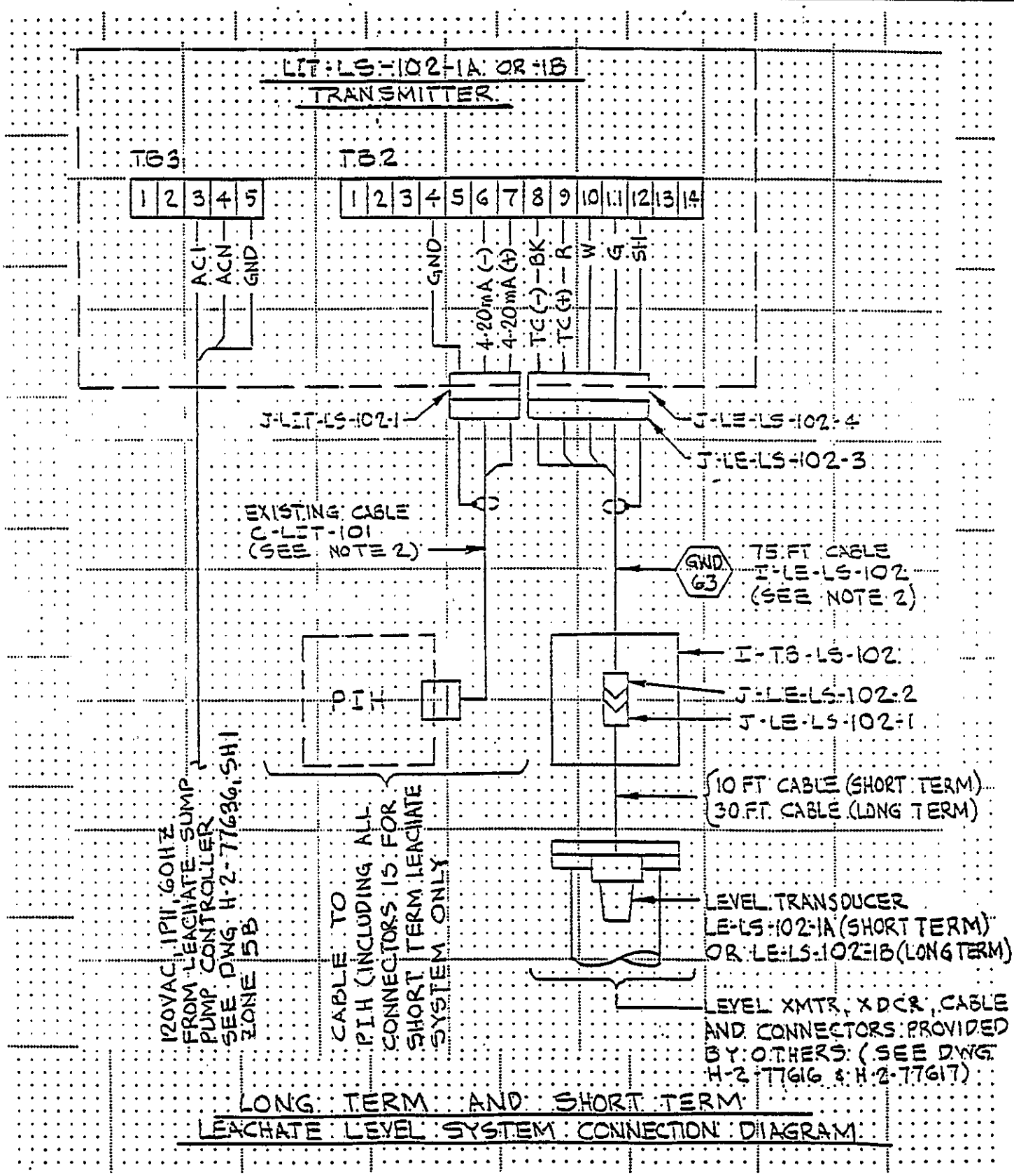
ULTRASONIC SIGNAL (GUIDED)

KAISER ENGINEERS HANFORD			ENGINEERING CHANGE NOTICE SKETCH			
Ref. Cwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77618	4	0	TK EHRHARD	PC Barrows	B-714-24	22/28
H-2-77618	12	0				
H-2-78490	4	0				
H-2-78490	12	0				



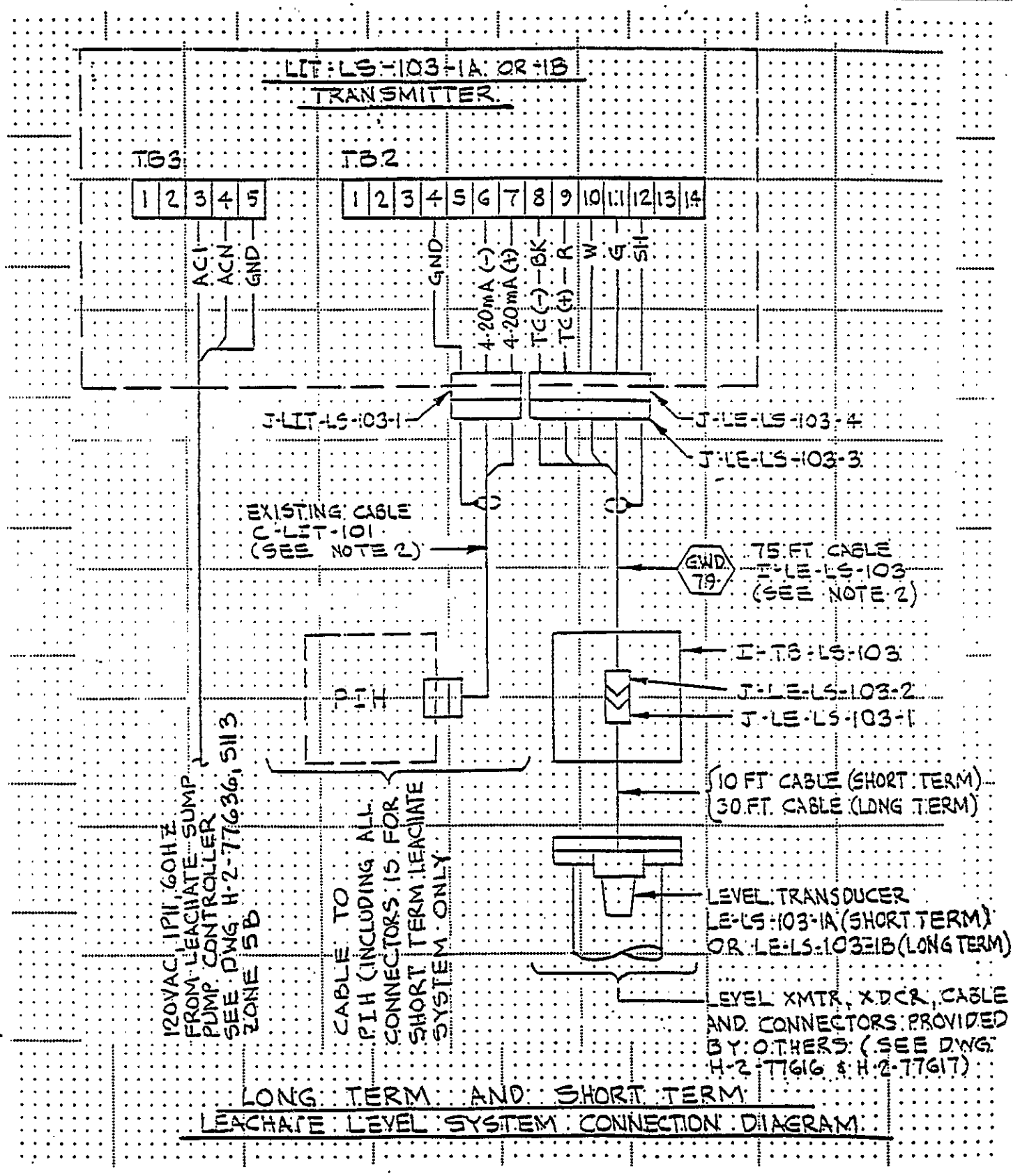
KEH-0159.00 (1/88)

KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg. H-2-77636	Sh. 2	Rev. 0	Prepared By G. KUBINSKI	Checked By	ECN No. B-714-24	Page 23/28



LONG TERM AND SHORT TERM
LEACHATE LEVEL SYSTEM CONNECTION DIAGRAM

KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg.	Sh.	Rev.	Prepared By	Checked By	ECN No.	Page
H-2-77636	4	0	G. KUBINSKI	A. R. Snowden	B-714-24	24/28



LONG TERM AND SHORT TERM
LEACHATE LEVEL SYSTEM CONNECTION DIAGRAM

9 0 1 1 7 8 3 1 9 1

WIRE RUN NO.	NO. OF WIRES	SIZE OF WIRE	TYPE OF WIRE	FROM	WIRE NUMBERS
GWD50	3-1/C	2	6	POLE P17A	PH-A, PH-B, PH-C
GWD51	3-1/C	2	6	MH 104(LBC)	PH-A, PH-B, PH-C
GWD52	3-1/C	2	6	MH 103(LBC)	PH-A, PH-B, PH-C
GWD53	3-1/C	2	6	MH 102A(LBC)	PH-A, PH-B, PH-C
GWD54	3-1/C	2	6	MH 103(LBC)	PH-A, PH-B, PH-C
GWD55	3-1/C	2	6	MH 102(LBC)	PH-A, PH-B, PH-C
GWD56	2-25/C	14	9	ANN-TBX-103 (MH 10	ANN-103 THRU -119,-121,-123,-125,-127,-129,-131,-133,-153 THRU -156,(4)-DC+,(10) SPARE
GWD57	16PR	20	4	TE-102-1 JB	TE-102-1-1(+) & (-) THRU TE-102-1-16(+) & (-)
GWD58	16PR	20	4	TE-102-2 JB	TE-102-2-1(+) & (-) THRU TE-102-2-16(+) & (-)
GWD59	16PR	20	4	TE-102-3 JB	TE-102-3-1(+) & (-) THRU TE-102-3-16(+) & (-)
GWD60	16PR	20	4	TE-102-4 JB	TE-102-4-1(+) & (-) THRU TE-102-4-16(+) & (-)
GWD61	4PR	20	7	I-TB-LS-102	TE-LS-102-1(+),-1(-),-2(+),-2(-),-SP-1(+),-SP-1(-),-SP-2(+),-SP-2(-)
GWD62	25/C	14	9	ANN-TBX-103 (MH 103	ANN-102,-120,-122,-124,-126,-128,-130,-132,-135,-137,-139,-141,-143,-144,-151,-152,(2)-DC+,(7) SPARE
GWD63	-	-	8	I-TB-LS-102	LIT-LS-102-30,-31(CABLE INSTALLATION BY OTHERS)
GWD64	3/C	16	2	I-TB-LS-102	LDK-LS-102-14,-14A,-15 -8,-9,-10,-11,-12 REVISE (zone E4)
GWD65	1	COAX	3	MH 102A WW(CCTV XM	I-XC-01A-3
GWD66	2	COAX	3	MH 102A(CCTV XMTR)	I-XC-01A-4,-5
GWD67	3	COAX	3	MH 103A(CCTV XMTR)	I-XC-01A-6,-7,-8
GWD68	6 PR	24	5	MH 102A(DATA LINK)	CDL-01-1(+),-1(-),-1(SH) THRU -6(+),-6(-),-6(SH)
GWD69	2-6 PR	24	5	MH 102A(DATA LINK)	CDL-01-1(+),-1(-),-1(SH) THRU -6(+),-6(-),-6(SH)
GWD70	3-6 PR	24	5	MH 103A(DATA LINK)	CDL-01-1(+),-1(-),-1(SH) THRU -6(+),-6(-),-6(SH)
GWD71	4/C	12	2	TB-P-102A (MH 102A)	D-PB-01-13A,-13B,-13C,GND
GWD72	2/C	12	2	LDK-LS-102	ANN-DC+,ANN-102
GWD73	16PR	20	4	TE-103-1 JB	TE-103-1-1(+) & (-) THRU TE-103-1-16(+) & (-)
GWD74	16PR	20	4	TE-103-2 JB	TE-103-2-1(+) & (-) THRU TE-103-2-16(+) & (-)
GWD75	16PR	20	4	TE-103-3 JB	TE-103-3-1(+) & (-) THRU TE-103-3-16(+) & (-)
GWD76	16PR	20	4	TE-103-4 JB	TE-103-4-1(+) & (-) THRU TE-103-4-16(+) & (-)
GWD77	4PR	20	7	I-TB-LS-103	TE-LS-103-1(+),-1(-),-2(+),-2(-),-SP-1(+),-SP-1(-),-SP-2(+),-SP-2(-)
GWD78	25/C	14	9	ANN-TBX-102 (MH 102)	ANN-103,-104,-106,-108,-110,-112,-114,-116,-118,-121,-123,-125,-127,-129,-131,-133,-153,-154, (2)-DC+,(7) SPARE
GWD79	-	-	8	I-TB-LS-103	LIT-LS-103-30,-31(CABLE INSTALLATION BY OTHERS)
GWD80	3/C	16	2	I-TB-LS-103	LDK-LS-103-14,-14A,-15 -8,-9,-10,-11,-12 REVISE (zone D4)
GWD81	2/C	16	2	ANNUNCIATOR	A-A-247-16, -C3
GWD82	3	12	1	P-TBX-103 (MH 103)	D-PB-01-13B,-13C,GND
GWD83	3-25/C	14	9	ANN-TBX-103 (MH 103)	ANN-102 THRU -156, (6)-DC+,(14) SPARE
GWD84	3	12	1	FUSE ENCLOSURE	B,C,GND
GWD85	3	12	1	ANNUN TRANSFORMER	AC1,AC2,GND
GWD86	2	12	1	ANNUN HORN RELAY TB	HORN 1, HORN 2
GWD87	4/C	12	2	TB-P-103A (MH 103A)	D-PB-01-13A,-13B,-13C,GND
GWD88	2/C	12	2	LDK-LS-103	ANN-DC+,ANN-103
GWD89	4/C	12	2	P-TBX-103(MH 103)	D-PB-01-13A,-13B,-13C,GND
GWD90	4/C	12	2	P-TBX-103(MH 103)	D-PB-01-13A,-13B,-13C,GND
GWD91	4/C	12	2	P-TBX-102(MH 102)	D-PB-01-13A,-13B,-13C,GND

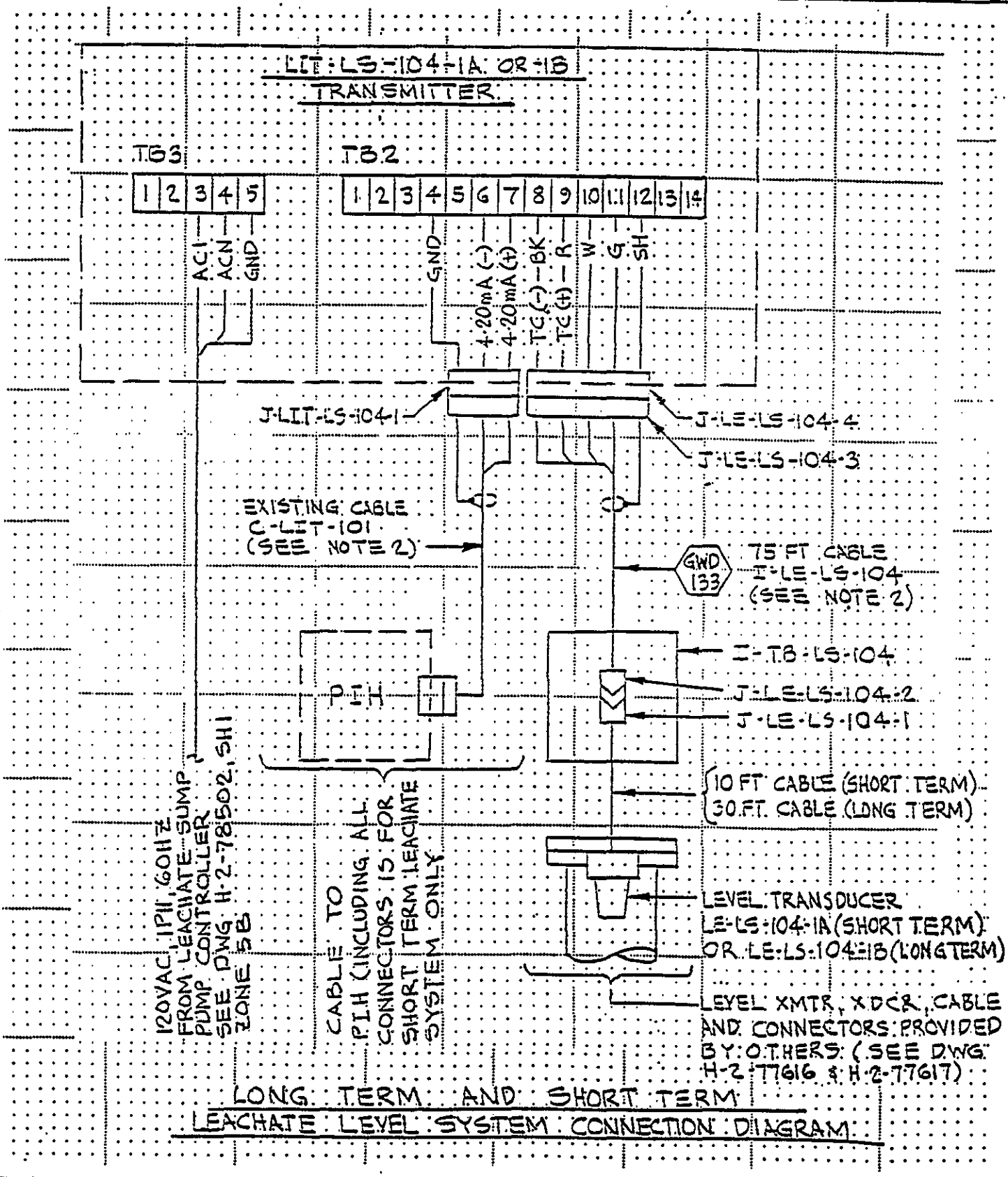
KAISER ENGINEERS
HANFORD

ENGINEERING CHANGE NOTICE SKETCH

Ref. Dwg. H-2-77641 | Sh. 1 | Rev. 0 | Prepared By G. KUBINSKI | Checked By [illegible] | ECN No. B-714-24 | Page 25/28

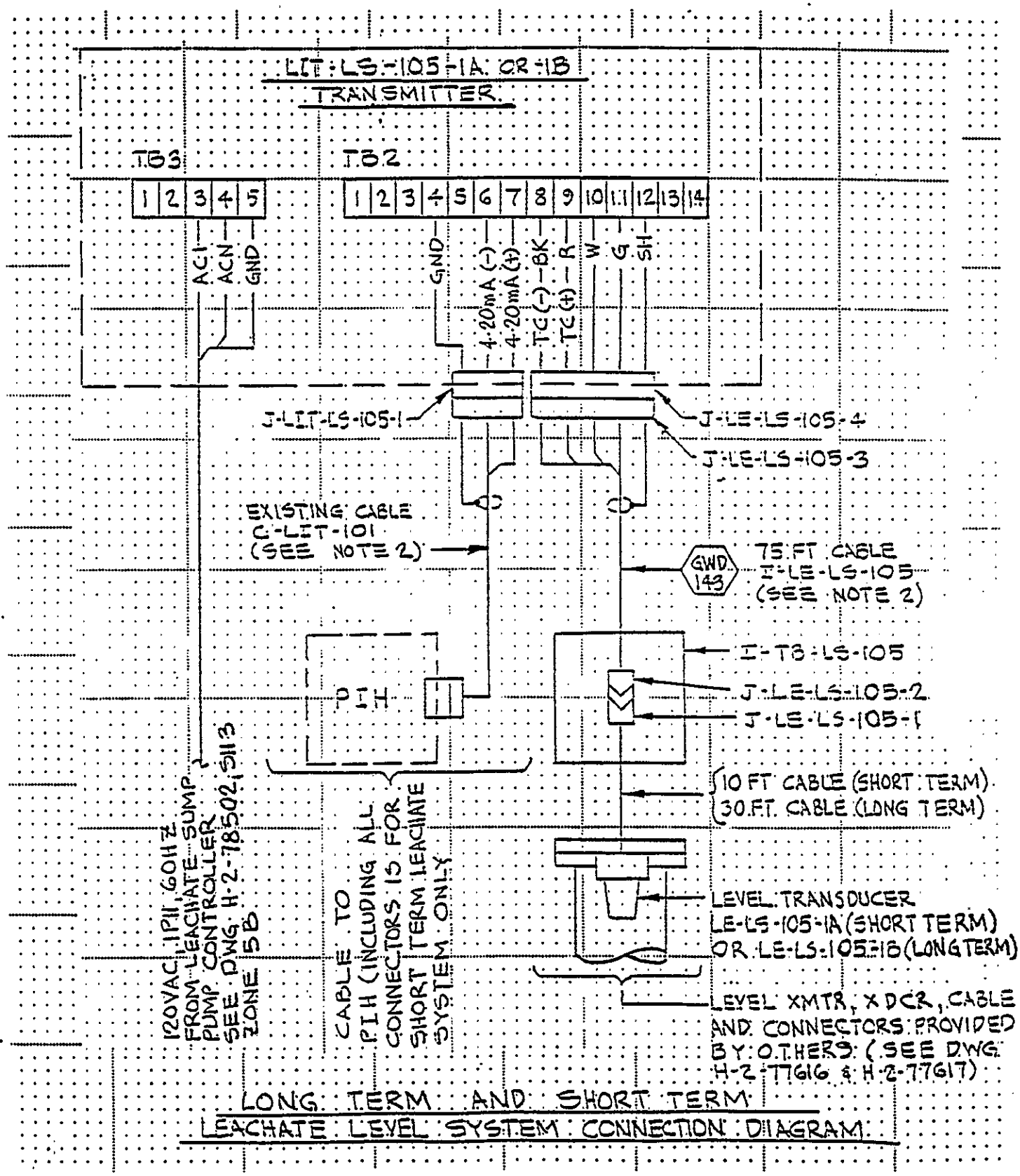
KEH-0159.00 (1/88)

KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg. H-2-78502	Sh. 2	Rev. 0	Prepared By G. KUBINSKI	Checked By	ECN No. B-714-24	Page 26/28



LONG TERM AND SHORT TERM
LEACHATE LEVEL SYSTEM CONNECTION DIAGRAM

KAISER ENGINEERS HANFORD	ENGINEERING CHANGE NOTICE SKETCH					
Ref. Dwg. H-2-78502	Sh. 4	Rev. 0	Prepared By G. KUBINSKI	Checked By	ECN No. B-714-24	Page 27/28



LONG TERM AND SHORT TERM
LEACHATE LEVEL SYSTEM CONNECTION DIAGRAM

KEH-0159.00 (1/88)

9 0 1 1 7 8 3 1 9 2 1

WIRE RUN NO.	NO. OF WIRES	SIZE OF WIRE	TYPE OF WIRE	FROM	WIRE NUMBERS
GWD125	3-1/C	2	6	MH-102(LBC)	PH-A,PH-B,PH-C
GWD126	3/1	6/8	1	D-PB-01(CIRCUIT 9)	D-PB-01-9A,-9B,-9C,-GND
GWD127	25/C	14	9	ANH-TBX-102 (MH-102) (EX	ANH-105,-107,-109,-111,-113,-115,-117,-119,-155,-156,(2)-DC(+),GND,(12)SPARE
GWD128	16PR	20	4	TE-104-1 JB	TE-104-1-1(+) & -1(-) THRU TE-104-1-16(+) & -16(-),SHLD
GWD129	16PR	20	4	TE-104-2 JB	TE-104-2-1(+) & -1(-) THRU TE-104-2-16(+) & -16(-),SHLD
GWD130	16PR	20	4	TE-104-3 JB	TE-104-3-1(+) & -1(-) THRU TE-104-3-16(+) & -16(-),SHLD
GWD131	16PR	20	4	TE-104-4 JB	TE-104-4-1(+) & -1(-) THRU TE-104-4-16(+) & -16(-),SHLD
GWD132	4PR	20	7	I-TB-LS-104	TE-LS-104-1(+),-1(-),-2(+),-2(-),-SP-3(+),-SP-3(-),-SP-4(+),-SP-4(-),SHLD
GWD133	——	——	8	I-TB-LS-104	LTT-LS-104-X,-X,(CABLE INSTALLATION BY OTHERS)
GWD134	4/C	16	2	I-TB-LS-104	LDK-LS-104-14,-14A,-15,GND —— -8,-9,-10,-11,-12
GWD135	3	COAX	3	MH-105A(CCTV XMTR)	I-XC-01A-9,-10,-(SEE NOTE 1)
GWD136	6PR	24	5	MH-105A(DATA LINK)	COL-01-1(+),-1(-),-1(SH) THRU -6(+),-6(-),-6(SH)(SEE NOTE 1)
GWD137	3/C	12	2	LDK-LS-104	ANH-DC+,ANH-104,GND
GWD138	16PR	20	4	TE-105-1 JB	TE-105-1-1(+) & -1(-) THRU TE-105-1-16(+) & -16(-),SHLD
GWD139	16PR	20	4	TE-105-2 JB	TE-105-2-1(+) & -1(-) THRU TE-105-2-16(+) & -16(-),SHLD
GWD140	16PR	20	4	TE-105-3 JB	TE-105-3-1(+) & -1(-) THRU TE-105-3-16(+) & -16(-),SHLD
GWD141	16PR	20	4	TE-105-4 JB	TE-105-4-1(+) & -1(-) THRU TE-105-4-16(+) & -16(-),SHLD
GWD142	4PR	20	7	I-TB-LS-105	TE-LS-105-1(+),-1(-),-2(+),-2(-),-SP-3(+),-SP-3(-),-SP-4(+),-SP-4(-),SHLD
GWD143	——	——	8	I-TB-LS-105	LTT-LS-105-X,-X,(CABLE INSTALLATION BY OTHERS)
GWD144	4/C	16	2	I-TB-LS-105	LDK-LS-105-14,-14A,-15,GND —— -8,-9,-10,-11,-12
GWD145	4/C	12	2	TB-P-103A(MH-103A) (EXST)	D-PD-01-13A,-13B,-13C,GND
GWD146	4/C	12	2	TB-P-105A(MH-105A)	D-PD-01-13A,-13B,-13C,GND
GWD147	3/C	12	2	LDK-LS-105	ANH-DC+,ANH-105,GND
GWD148	3/1	6/8	1	TB-P-103A-CP(MH-103A)	D-PD-01-9A,-9B,-9C,GND
GWD149	3/1	6/8	1	TB-P-102(MH-102) (EXST)	D-PD-01-13A,-13B,-13C,GND
GWD150	3	12	1	(104)(LEACHATE SUMP PUMP	AC1, ACN, GND
GWD151	2-3/C	12	2	P-TB-LS-104	P-LS-104A-A(+),-A(-),-GND;P-LS-104B-A(+),-A(-),-GND
GWD152	2-3/C	12	2	P-TB-LS-105	P-LS-105A-A(+),-A(-),-GND;P-LS-105B-A(+),-A(-),-GND
GWD153	3	12	1	(104)(LEACHATE SUMP PUMP	H1,H2,GND
GWD154	3	12	1	(104) 3KVA XFMR SECONDAR	X1,ACN,GND
GWD155	3	12	1	LDK-LS-104	AC1,ACN,GND
GWD156	3	12	1	LDK-LP-104	LDK-LP-104-8,-11,GND
GWD157	4/C	16	2	LDK-LP-104	LDK-LP-104-14,-14A,-15,GND
GWD158	3	12	1	(104)(LEACHATE SUMP PUMP C	AC1,ACN,GND(CONDUIT & CABLE INSTALLATION BY OTHERS)
GWD159	3	12	1	(105) LEACHATE SUMP PUMP	H1,H2,GND
GWD160	3	12	1	(105) 3KVA XFMR SECONDAR	X1,ACN,GND
GWD161	3	12	1	(105)(LEACHATE SUMP PUMP C	AC1,ACN,GND
GWD162	3	12	1	LDK-LS-105	AC1,ACN,GND
GWD163	3	12	1	LDK-LP-105	LDK-LP-105-8,-11,GND
GWD164	4/C	16	2	LDK-LP-105	LDK-LP-105-14,-14A,-15,GND
GWD165	3	12	1	(105) LEACHATE SUMP PUMP (	AC1,ACN,GND(CONDUIT & CABLE INSTALLATION BY OTHERS)
GWD166	4PR	20	7	TE-TBX-105 TERM BLK	TE-LS-105-1(+),-1(-),-2(+),-2(-),-SP-3(+),-SP-3(-),-SP-4(+),-SP-4(-),SHLD
GWD167	16PR	20	4	TE-TBX-104 TERM BLK	TE-104-1-1(+) & -1(-) THRU TE-104-1-16(+) & -16(-),SHLD
GWD168	16PR	20	4	TE-TBX-104 TERM BLK	TE-104-2-1(+) & -1(-) THRU TE-104-2-16(+) & -16(-),SHLD
GWD169	16PR	20	4	TE-TBX-104 TERM BLK	TE-104-3-1(+) & -1(-) THRU TE-104-3-16(+) & -16(-),SHLD
GWD170	16PR	20	4	TE-TBX-104 TERM BLK	TE-104-4-1(+) & -1(-) THRU TE-104-4-16(+) & -16(-),SHLD
GWD171	4PR	20	7	TE-TBX-104 TERM BLK	TE-LS-104-1(+),-1(-),-2(+),-2(-),-SP-3(+),-SP-3(-),-SP-4(+),-SP-4(-),SHLD
GWD172	16PR	20	4	TE-TBX-105 TERM BLK	TE-105-1-1(+) & -1(-) THRU TE-105-1-16(+) & -16(-),SHLD
GWD173	16PR	20	4	TE-TBX-105 TERM BLK	TE-105-2-1(+) & -1(-) THRU TE-105-2-16(+) & -16(-),SHLD
GWD174	16PR	20	4	TE-TBX-105 TERM BLK	TE-105-3-1(+) & -1(-) THRU TE-105-3-16(+) & -16(-),SHLD
GWD175	16PR	20	4	TE-TBX-105 TERM BLK	TE-105-4-1(+) & -1(-) THRU TE-105-4-16(+) & -16(-),SHLD
GWD176	3-1/C	2	6	225KVA XFMR (VAULT 103)	PH A, PH B, PH C (CABLE INSTALLATION BY OTHERS)
GWD177	1	5/8"DIA	10	225KVA XFMR GND PAD (VAULT 1	GND (CABLE INSTALLATION BY OTHERS)

REVISE (ZONE E4)

REVISE (ZONE E4)

KAISER ENGINEERS HANFORD

ENGINEERING CHANGE NOTICE SKETCH

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