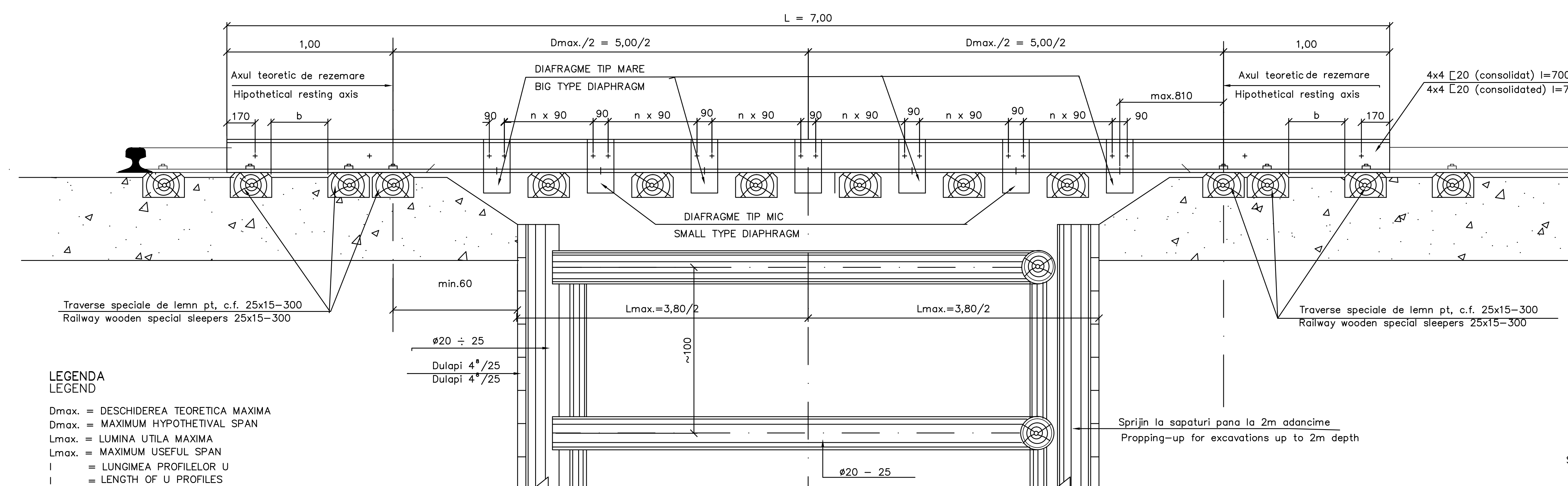
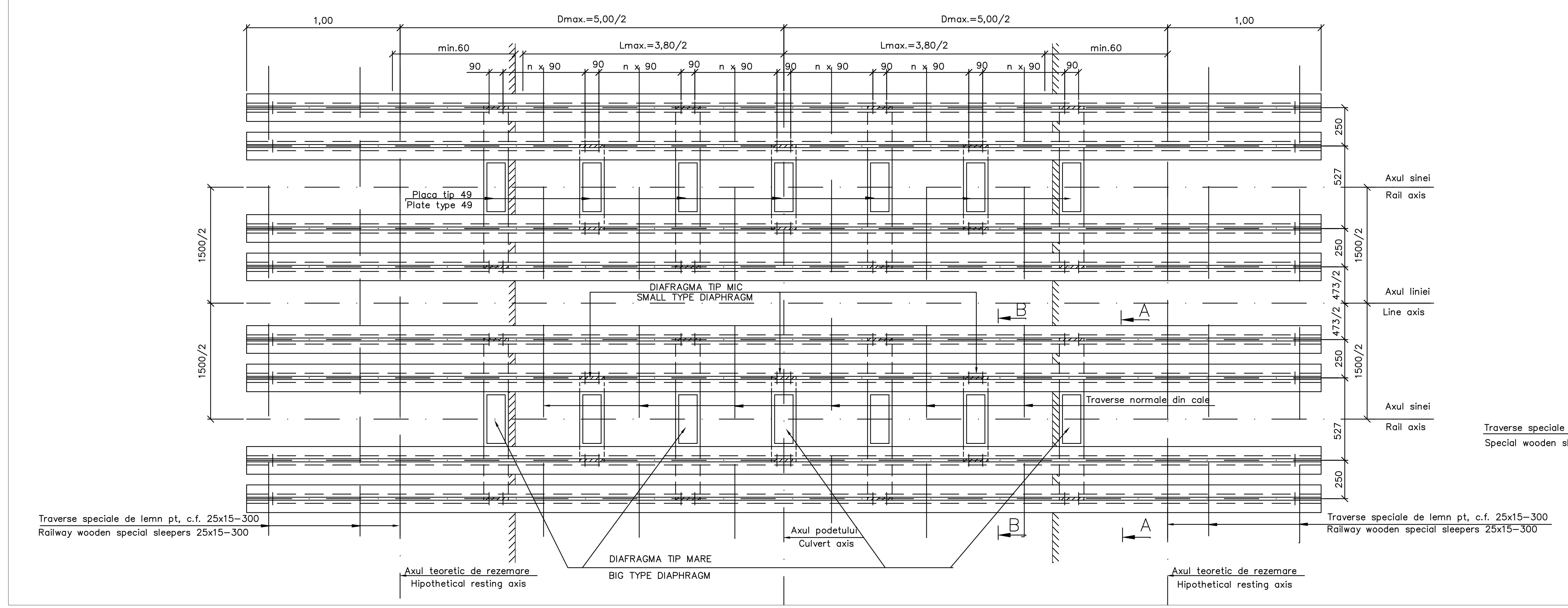
SECTIUNE LONGITUDINALA
LONGITUDINAL SECTION



LEGENDA
LEGEND

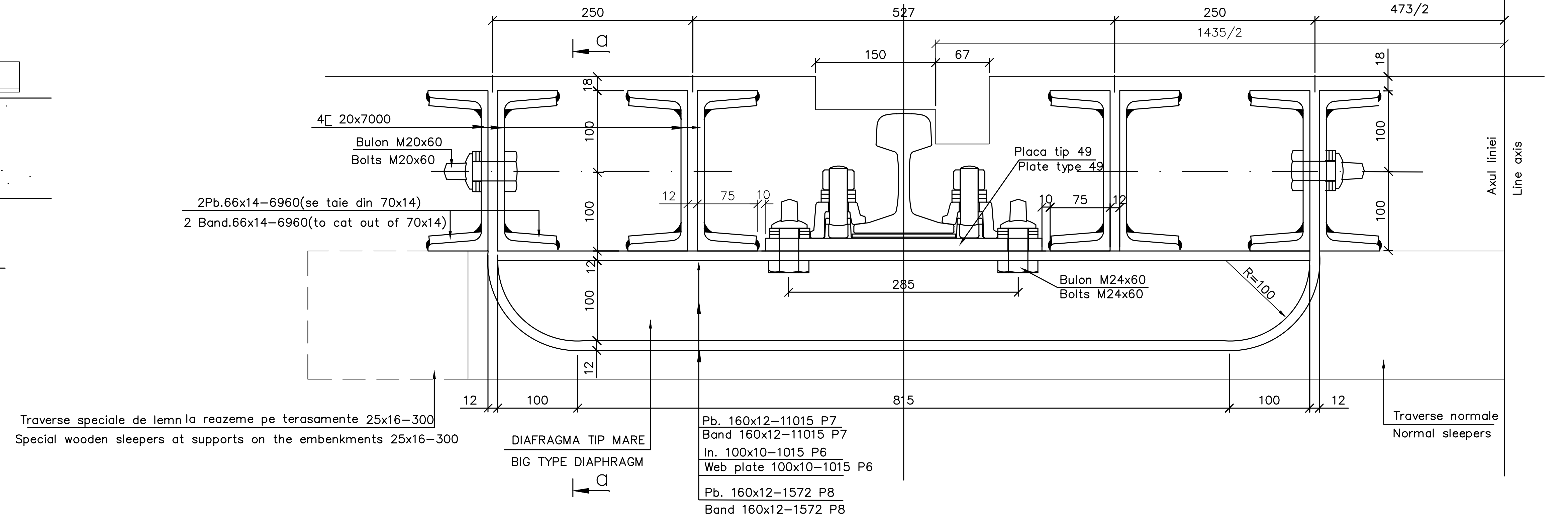
Dmax. = DESCHIDEREA TEORETICA MAXIMA
Dmax. = MAXIMUM HYPOTHETIVAL SPAN
Lmax. = LUMINA UTILA MAXIMA
Lmax. = MAXIMUM USEFUL SPAN
l = LUNGIMEA PROFILELOR U
l = LENGTH OF U PROFILES
b = DISTANTA MINIMA PENTRU BURAJ
b MINIMUM DISTANCE FOR TEMPING
n = NUMAR VARIABIL (DISTANTA MAXIMA INTRE DIAFRAGME VA FI 81cm)
n = VARIABLE NUMBER (MAXIMUM DISTANCE BETWEEN DIAPHRAGMS WILL BE 81cm)

PLAN



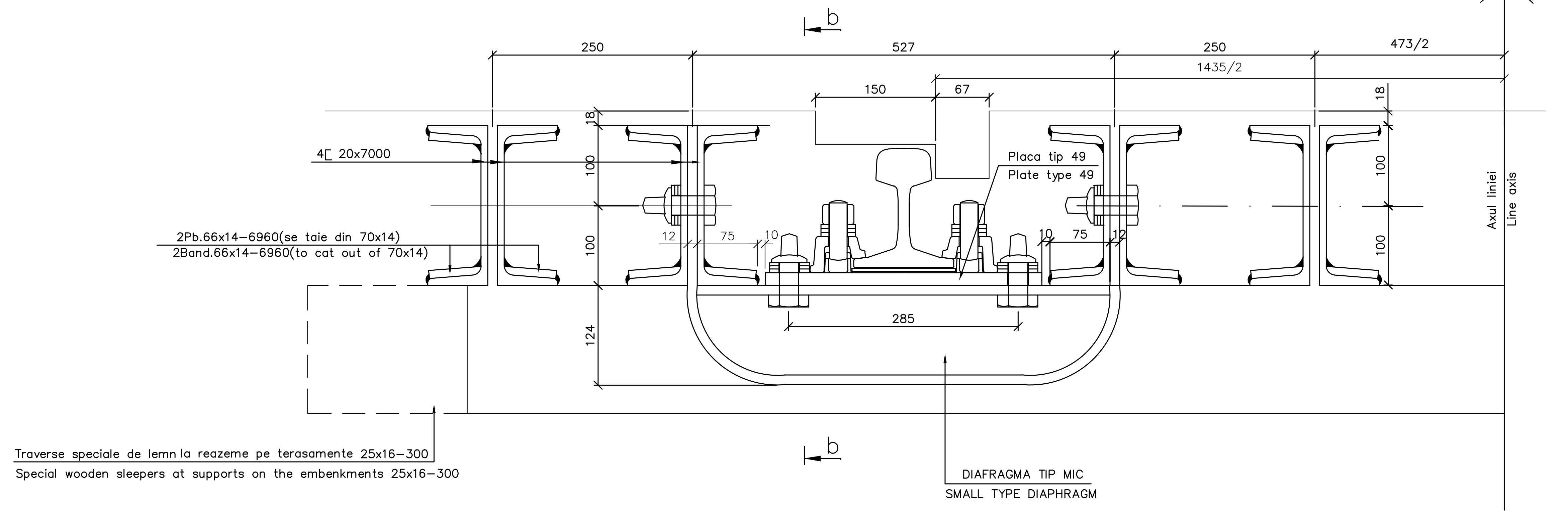
MONTAREA DIAFRAGMEI TIP MARE PENTRU SUSTINEREA SINEI
MOUNTING THE SMALL TYPE DIAPHRAGM TO SUPPORT THE RAIL
SECTIUNE A – A
SECTION A – A

Sc: 1:5



MONTAREA DIAFRAGMEI TIP MIC PENTRU SUSTINEREA SINEI
MOUNTING THE BIG TYPE DIAPHRAGM TO SUPPORT THE RAIL
SECTIUNE B – B
SECTION B – B

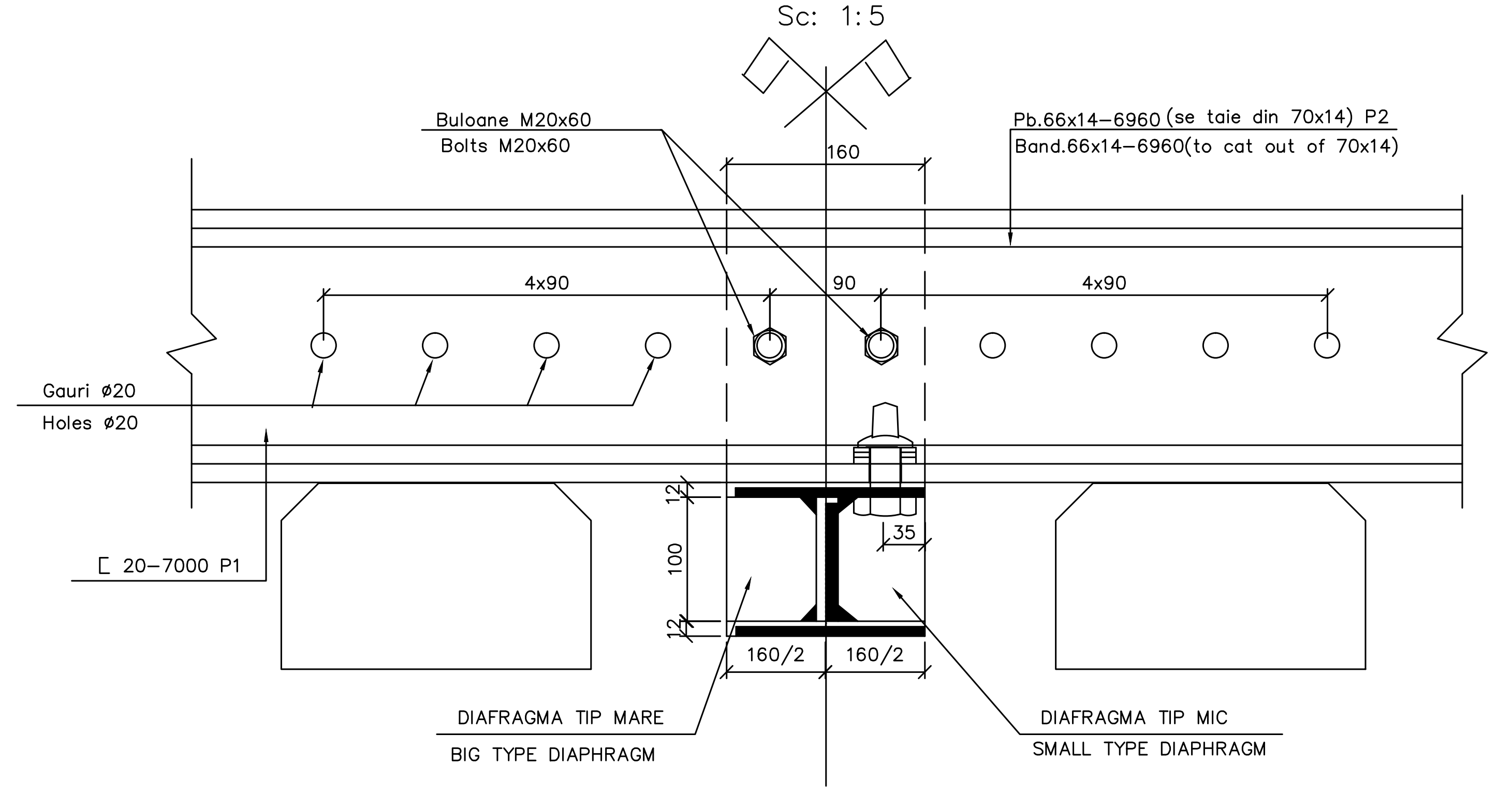
Sc: 1:5



SECTIUNE a – a
SECTION a – a

SECTIUNE b – b
SECTION b – b

Sc: 1:5



MATERIALE NECESARE PENTRU CONFECTIONAREA UNUI PODET DE 5m DESCHIDERE MATERIALS REQUIRED TO MANUFACTURE A 5m SPAN CULVERT			
DENUMIREA PIESEI PART DENOMINATION	NR. BUCATI NO. PIECES	GREUTATI WEIGHT kg/buc. kg/pieces	 kg/podet kg/culvert
PROFILE METALICE U CONSOLIDAT METALLIC PROFILES WITH U CONSOLIDATED ELEMENT	16	286	4576
DIAFRAGMA TIP MIC SMALL TYPE DIAPHRAGM	6	28	168
DIAFRAGMA TIP MARE BIG TYPE DIAPHRAGM	8	47	376
BULOANE M24X60 BOLTS M24X60	56	0.42	24
BULOANE M20X60 BOLTS M20X60	12	0.28	20
MATERIAL METALIC METALLIC MATERIAL	TOTAL 5164kg		
MATERIAL DE CALE TRACK MATERIAL			
PLACI TIP 49 PLATES TYPE 49	14		
BULOANE VERTICALE VERTICAL BOLTS	28		
INELE RESORT SPRING RINGS	28		
TIRFOANE LAG SCREWS	96		
TRAVERSE SPECIALE SPECIAL SLEEPERS	6		

PROCES TEHNOLOGIC

a. Se va scoate balastul dintre traverse pana la talpa traverselor pe o portiune simetrica fata de axul podetului atat cat este necesar pentru montarea diafragmelor.

b. Se introduc intre traverse diafragmele pentru sustinerea sinelor. Apoi se vor monta si placile tip 49 care se vor prinde in buloane de diafragme.

c. Se introduc in amplasamentul podetului profilele U de care se vor prinde in buloane diafragmele in functie de pozitia traverselor. Distanta maxima intre 2 diafragme va fi de 81cm si se va evita repetarea consecutiva a acestei distante.

d. Profilele U se prind la capete cu tirfoane de traversele de rezemare. Operatiile de mai sus se vor executa in pauze de circulatie.
Viteza de circulatie pe timpul montarii podetului provizoriu va fi de 30km/h.

TECHNOLOGICAL FLOW

a) the ballast between the sleepers shall be taken out up to the sleepers base for a symmetrical distance from the culvert axis as much as it is necessary to mount the diaphragms.

b) Diaphragms shall be introduced between the sleepers to sustain the rails. Then the plates type 49 shall be also mounted, which shall be fastened on the diaphragms with bolts.

c) The U profiles shall be introduced in the culvert location. On them the diaphragms shall be fastened with bolts, complying with the sleepers position. The maximum distance between two diaphragms shall be 81 cm avoiding repeating this distance consecutively.

d) The U profiles shall be fastened at the ends on the resting sleepers with lag screws.
The above mentioned operations shall be carried out during the traffic breaks.
The running speed during the period when the temporary culvert is mounted shall be 30 km /h.

NOTE

1 – After mounting the temporary bridge, the first train sets shall run at restricted speed. The first train set at S = 5 km/h and then, within the next 24 hours at S =15 km/h. During this period the bridge shall be thoroughly supervised, repairing any possible subsidence of the ground.
2 – The superstructure shall be made up of steel elements, assembled with bolts complying with the plan.
3 – The sleepers along the track shall remain suspended by the rails along the entire span of the culvert and shall be fastened on the plates in all the 4 lag screws. They will help to maintain the embankment.
4 – The U profiles making up the girders are fastened on the resting sleepers with lag screws at the ends.
5 – It is compulsory the diaphragms sustaining the rails to be fastened on the girders with 4 bolts presented in the plan, two on each side.
6 – Rail joints are not allowed on the temporary culvert and at its ends. The first joint shall be placed at minimum 3.00m from the end of the girders (U profiles). If there are joints on the culvert location, the respective rails shall be replaced with new rail coupons (rail lengths) so as to comply with the above mentioned requirements.
7 – All along the temporary culvert there shall be used (exclusively) rail types 49. If along the line section where the culvert shall be mounted there are rails of another type, in the culvert area they shall be replaced with the rail type 49 which shall be connected with the existing one for minimum 3 m distance from the end of the girders.
8 – The bolts linking together the steel pieces shall be perfectly tightened being thoroughly supervised during the operation.
9 – There can be two ways of resting the culvert:
a. resting on the embankments on two adjacent sleepers perfect well tempted adjacent sleepers so as to avoid subsidence. In this case the useful span is maximum.
b. Resting on rigid elements (masonry, steel decks ends, sleepers piles fastened by hard wood cross beam (30 x 30 cm). In this case, the span of the culvert can be enlarged up to the inside faces of the rigid elements. This plan presents the first situation: resting on te embankments.
10 – The excavation propping up systems shall be thoroughly and attentively made so as to avoid the earth behind them flow. The dimensions of the element making up the propping up systems (boards, frames) shall be chosen depending on the nature of the ground and on the depth of the excavations. For the excavations up to 2 m deep (for the resting piles) no horizontal frames shall be provided in order to obtain an increased usable span.

NOTA

1– Dupa introducerea in cale a podetului provizoriu, primul tren va circula cu restrictie de viteza de 5km/h, iar in urmatoarele 24 ore se va circula cu 15km/h timp in care podetul se va tine sub stricta supraveghere, remediindu–se eventualele tasari ale traverselor de reazem.
2– Suprastructura va fi alcatuita din elemente metalice asamblate cu buloane conform planului
3– Traversele din cale raman atarnate de sini pe toata deschiderea podetului provizoriu si se vor prinde de placi in toate cele 4tirfoane. Ele au rolul de a mentine ecartamentul.
4– Profilele U care alcatuiesc grinzile, se prind prin tirfoane de traversele de reazemare la capete.
5– Diafragmele de sustinere a sinelor se vor prinde in mod obligatoriu de grinzi cu cele 4 buloane aratate in plan cate 2 pe fiecare parte.
6– Pe toata lungimea podetului provizoriu nu se admit joante ale sinelor din cale.Prima joanta trebuie sa se afle la o distanta de min. 3m de capetele grinzilor (profilelor U). Daca in amplasamentul podetului exista joante, sinele respective se vor inlocui cu cupoane de sina noi, astfel ca sa se respecte indicatiile de mai sus.
7– Pe toata lungimea podetului provizoriu se vor folosi exclusiv sine tip 49. Daca pe sectorul de linie pe care urmeaza a se executa podetul, sunt sini de alt tip ele se vor inlocui cu tip 49 in zona podetului, care se vor racorda cu cele existente pe o distanta de min.3m de la capetele grinzilor.
8– Buloanele de solidarizare a pieselor metalice vor fi stranse perfect si se vor urmari cu multa atentie in timpul exploatarii.
9– Se pot realiza doua moduri de rezemare ale podetului:
a. Rezemarea pe terasamente pe cate doua traverse adiacente, bine burate perfecte astfel ca sa nu se produca tasari In acest caz lumina utila este maxima
b. Rezemarea pe elemente rigide (zidarii, capete de tabliere metalice, stive de traverse prinse prin intermediul unei babe de lemn de esenta tare (30x30cm)In acest caz lumina podetului poate fi marita pana la fetele interioare ale elementelor rigide.In acest plan este aratata rezemarea pe terasamente.
10– Sprijinirile sapaturilor trebuiesc executate cu multa ingrijire incat sa nu permita scurgerea pamantului in spatele lor. Dimensiunile elementelor ce alcatuiesc sprijinirile(dulapi, cadre,,) se vor alege in functie de natura terenului si adancimea sapaturilor. Pentru sapaturile pana la 2,00m adancime (cazul stivelor de reazem)nu se vor prevadea cadre orizontale in scopul obtinerii unei lumini utile sporite.

CONVOI DE CALCUL 0,9 T8,5

D					
C					
B					
A	12.2011	Revizia 1	Carmen Balan		
Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANŢAT DE UNIUNEA EURO
EUROPEAN UNION FINANCED PR

C.N.C.F. "C.F.R." - S.A.

CLIENT / CLIENT

ITALFERR
GRUPPO FERROVIE DELLO STATO
Joint Venture leader

Scott Wilson

OBERMEYER
PLANEN + BERATEN GmbH

TECNIC
Consulting Engineers

CONSULTANT / CONSULTANT			Data Date	Semnătură Signature
Aprobat Approved	Şef proiect Project manager	R. Liuzza		
Aprobat Approved	Coordonator Secţiune 1 Section 1 Coordinator	C. Gambelli		
Verificat Checked	Expert Cheie Checking Expert	V.Kallidromitis		VK

SUBCONTRACTANT / SUBCONTRACTOR

APEX

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Dinulescu Stanciu	11.2011	
Întocmit Elaborated	Proiectant Designer	Carmen Balan	11.2011	

Reabilitarea liniei de cale ferata Braşov - Simeria, parte componentă a coridorului IV Pan European, pentru circulaţia trenurilor cu viteza maximă de 160 km/h,
Tronsonul : Braşov - Sighişoara
Rehabilitation of the railway line Braşov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h,
Section : Braşov - Sighişoara

Proiect/Project
2004/RO/16/P/PA/003

Faza / Phase:
P.Th. / T.D.

Denumire desen / Drawing Title :

Pod Provizoriu U5 - Dispozitie generala

U5 Provisory Bridge - General Layout

Codificare / Codification System

Scara / Scale
1:20, 1:5

LOT / LOT

Nr. / No
01 / 01

EA51 01 E 00 BC PO 00 0 0 015 1